U.S. DEPARTMENT OF COMMERCE
National Technical Information Service

PB-27[illegible] 395

Quality Assurance Practices and Procedures

Environmental Protection Agency, Chicago, Ill

Apr 77

EPA-905/4-77-004

PB 270 895

QUALITY ASSURANCE PRACTICES AND PROCEDURES

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NATIONAL TECHNICAL
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U.S. DEPARTMENT OF COMMERCE
SPRINGFIELD, VA. 22161

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Introduction

The central idea of a quality assurance program for an environmental laboratory is to measure the accuracy and precision of all reported data and to be able to communicate to data users and other offices the quality of any given set of data values. In an effort to meet this ambitious and necessary objective, the Central Regional Laboratory (CRL) has defined administrative responsibilities, methods of analyses, critical measurement audits for each method, and control limits for each of the audits used routinely at the CRL. This document describes these Quality Assurance practices and should provide sufficient information for the user to estimate the data quality for any set of data reported by the CRL. Only those results in which all quality assurance audits were passed satisfactorily will be reported without qualification.

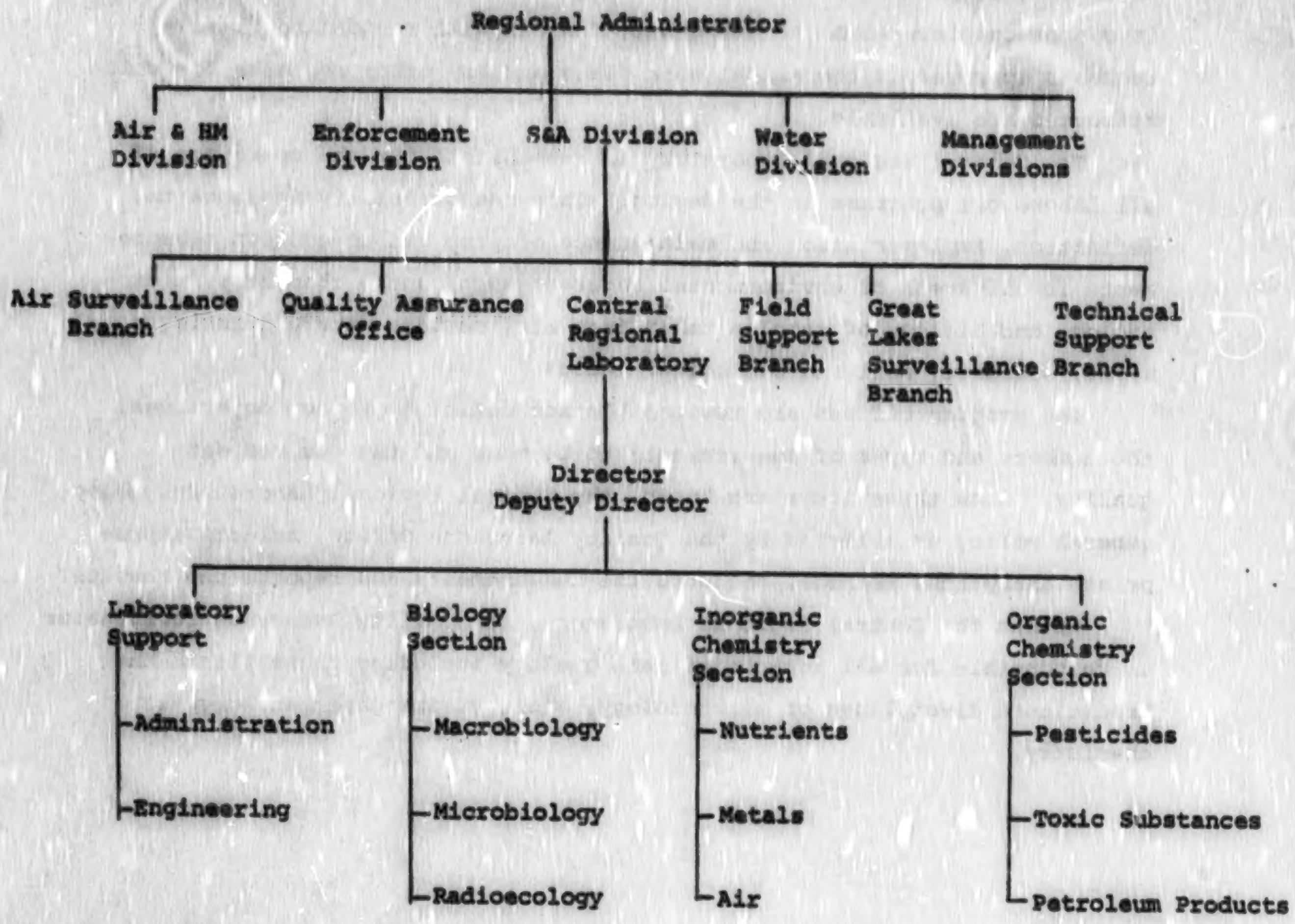
The underlying principle of our program is that a sufficient number of quality assurance audits be conducted to insure that the accuracy and precision of a measurement are within the limits defined in this document. Since some error is associated with all measurements, our goal is to define for the data user the precision and accuracy of data values we report on a routine basis, and to be in a position to estimate the costs of improving the accuracy, sensitivity or precision if requested to do so.

It has been the CRL's experience that some elements of a quality assurance program are general in nature and frequently taken for granted. One example would be sample collection. If a representative sample is not taken, no amount of laboratory effort will result in a useful result. A second example of this type of element is community instrument calibration and maintenance. Frequently "everyone" is responsible for an instrument such as the balance but no one performs calibration and maintenance functions on a regular basis to insure the balance is operating properly each time it is used.

Other elements of quality assurance are quite specific and must be performed on a parameter by parameter basis. We do not believe quality assurance for such diverse items as insuring qualitative methylation of an acid pesticide, calibrating an ozone monitor and setting up a biochemical oxygen demand analysis can be adequataly treated in general discussion. The production of analytical data of known quality requires that both types of elements be addressed in the quality assurance program.

II. Management of the Quality Assurance Program

The relationships between selected Region V offices is described in the organizational chart shown below.


Regional Administrator
Air & HM Division
Enforcement Division
S&A Division
Water Division
Management Divisions
Air Surveillance Branch
Quality Assurance Office
Central Regional Laboratory
Field Support Branch
Great Lakes Surveillance Branch
Technical Support Branch
Director
Deputy Director
Laboratory Support
Administration
Engineering
Biology Section
Macrobiology
Microbiology
Radioecology
Inorganic Chemistry Section
Nutrients
Metals
Air
Organic Chemistry Section
Pesticides
Toxic Substances
Petroleum Products

The Quality Assurance Office (QAO) is responsible for and has been given the responsibility to establish quality assurance policy for the Surveillance & Analysis Division. Approved policies carry the signature of the Director of the S&A Division and apply to those phases of a program that affect data quality. The Quality Assurance Office is responsible for requesting support from the CRL for all quality assurance activities which it cannot complete with QAO personnel. The CRL will respond to those requests approved in the annual work plans and any other requests for which resources are available.

The Central Regional Laboratory is responsible for the operation of all laboratory programs in the Region. This responsibility includes the definition, implementation and maintenance of programs to conduct measurements in all areas of environmental interest such as the chemistry, microbiology and biology of samples taken from air, surface water, drinking water, sediment, soil and biological medias.

The program offices are responsible for defining project objectives, the numbers and types of measurements to be made and the desired data quality. Once these items are known, the Central Regional Laboratory, using general policy established by the Quality Assurance Office, selects appropriate analytical methods, conducts the measurements and reports the results.

Within the Central Regional Laboratory, the Quality Assurance Coordinator is responsible for all aspects of data quality including those within the traditional disciplines of microbiology, biology, inorganic and organic chemistry.

Each administrative unit adheres to the same quality assurance program as described in this document. Other offices and laboratories who perform measurement functions for the Central Regional Laboratory are also required to conduct the quality assurance audits as described in this document and to maintain the data for inspection and evaluation.

It is the responsibility of the CRL line supervisors to interpret, implement and maintain approved policy decisions. The procedures the CRL will follow in implementing new and current QA programs are described below.

a) All personnel will follow the directions of their immediate supervisor on all quality assurance matters. All requests for quality assurance support from other offices should be referred to the Director, CRL.

b) Bench scientists are responsible for following all quality assurance procedures as described in this manuscript as they apply to their assigned parameters. Questions will be explained by their immediate supervisor or the CRL quality assurance coordinator. The scientists should always be in a position to provide QA audit results to support reported data. This includes both specific (duplicate analysis) and general (balance calibration) audit measurements. If any instance occurs where an approved audit has not been made, the bench scientist is responsible for reporting the incident to his Section Chief.

Any instrument used in the course of the analysis should be checked as outlined in Appendix II of this document. Furthermore, any quantization should be done by standardizing the instrument such that the unknown concentration is between two of the standard concentrations. Standards are to be made daily as needed, unless stability is known and documented. Unstable solutions should be refrigerated in an explosion proof refrigerator when necessary. Any qualitative analysis made by gas chromatography is to be confirmed by using a column of different polarity, by using GS/MS, IR, or NMR for identification purposes.

c) The Quality Assurance Coordinator will initiate all changes in quality assurance procedures through normal administrative channels. Implementation of quality assurance decisions will occur as soon as possible after a recommended policy is approved by the S&A Division Director.

The Quality Assurance Coordinator will review and update the CRL QA program including parameter audit procedures, control limits, etc., and prepare a program document prior to March of each year. The program document will define the level of quality assurance for each measurement to be made during the next fiscal year.

New analytical procedures should receive approval before they are used to analyze samples. Approval procedures for methods to be used to analyze samples for the NPDES are described in the December 1, 1976 Federal Register. Approval for the NPDES is made in writing by the Regional Administrator. Approval to use new methods for other programs will be made by the CRL Quality Assurance Coordinator, after he has received sufficient documentation to support use of the new procedure. Generally, the supporting documentation will consist of a comparison between new and referee procedures as required to obtain alternate test procedure status for the NPDES program. For example, although the fluoride probe cannot be used to analyze certain industrial wastes directly, it works perfectly well for most drinking waters. Any change in an existing analytical procedure that changes the chemistry, equipment, precision, accuracy or detection limit will result in a new analytical procedure. Approved procedures are those described in this document plus those procedures approved by the Quality Assurance Coordinator.

It is realized that certain analysis are requested on a one time basis, especially in the Organic Section, and which do not justify complete method validation. In such cases the proposed analytical procedures should be approved in writing by the Section Chief before the analysis begins, and a complete description of quality assurance criteria should be submitted with the results. This will provide the users with information from which data quality may be estimated.

Each time a scientist is asked to perform a measurement which is new to him, the Section Chief will either assume full responsibility for data quality or provide an appropriate training program. After the training program is completed, the scientist will analyze at least 10 quality assurance samples and the results will be reported to the Quality Assurance Coordinator to document that the scientist can perform the assigned task in a satisfactory manner. The qulaity assurance coordinator will maintain a file listing those measurements each scientist is qualified to make independently.

The CRL Quality Assurance Coordinator or personnel from the Quality Assurance Office will request to review all quality assurance data for a given method from time to time. These requests will usually be to collect information to support reported data or to estimate confidence levels for a given data set. The responsibile analyst should therefore be sure that he is familiar with the location of all such quality assurance data files for each of his assigned parameters and that all files are up to date and complete.

Section Chiefs are responsible for interpreting and administering approved quality assurance policies as they apply to those parameters and instruments assigned to the Section. They have authority to invalidate analytical results. They are responsible for reviewing and approving all parameter QA practices and reporting summaries to the Quality Assurance Coordinator. They are also responsible for submitting updated sections of this document prior to January of each year.

The Section Chiefs will assign samples for both routine and non-routine parameters to the appropriate laboratory personnel. For non-routine tests, the person responsible for the analysis will make a detailed flow chart indicating all steps to be taken to complete the analysis. The Section Chief will approve it or make changes as necessary. Once the flow chart is finalized, it should not be changed without the approval of the Chief. A minimum of one CRL distilled water blank and one laboratory control standard is to be analyzed with each set of samples making up a laboratory run. If the CRL blank contains material in excess of 5% of any measured concentration value or above the method audit control limit as defined in Appendix II, the Section Chief is to be consulted for his action.

III. GENERAL OPERATING PROCEDURES OF QUALITY ASSURANCE

a) Sample Collection

In order to determine the variability in data which may be attributed to sample collection, the CRL is requesting that each sampling crew collect, in duplicate, one of each twenty or fewer samples collected during a days work. It is assumed that all samples are labeled properly and are as representative of the sampled media as is feasible. All samples should be preserved immediately as described by the Quality Assurance Office. For all preserved samples, at least one reagent blank containing the preservative diluted with distilled water should be submitted with each 20 or fewer samples collected during a given work period. These requests will impose a minimum 10% quality assurance overhead on all projects.

The samples are shipped by United Parcel Service to the CRL as soon as possible after sample collection.

When the samples are received at the CRL shipping and receiving room, all bottles constituting each sample are arranged according to the preservative used. For example, ten samples may be received and each sample might consist of a bottle preserved with nitric acid (metals), another bottle preserved with sulfuric acid (nutrients) and up to 22 other bottles each containing a sample aliquot preserved for a specific group of analyses. Each bottle label is checked against the appropriate analysis request form and if correct, the sample is logged in. If errors are detected, the originating office is contacted and a decision made prior to sample log in about proper disposition of the sample.

Once the samples are logged in, appropriate pages of the analysis request form are provided to each Section Chief and all bottles are transferred from shipping and receiving to their laboratory area. The Section Chiefs are then responsible for completing all requested analyses prior to the project due date. The Section Chiefs discard all non-custody samples and custody samples completely consumed during analyses immediately after the requested analyses are completed. Custody samples which are not completely consumed are transferred to custody storage pending release.

If samples are received and their identity cannot be clearly established by consultation with the submitting office, the samples are discarded. If the Section Chiefs discover bottles that have not been preserved properly, the submitting office is advised that the samples cannot be analyzed. If it is impossible to analyze a sample within the specified holding time, the submitting office is advised of the situation and requested to provide advice as to sample disposition. For all other similar problems the Quality Assurance Coordinator will decide whether or not the samples should be analyzed after consulting with the originating office.

b) All samples are analyzed using one of the approximately 500 different numbered methods listed in Appendix I or by a procedure approved by the Section Chief as described previously. It should be noted that each of these methods have been documented or referenced and that selected quality assurance audits with associated control limits have been defined for each method (Appendix II). The audits listed in Appendix II are "over-all" audits for monitoring the entire measurement procedure.

c) In general, the CRL will not correct any analytical data for high reagent blanks. Instead, the submitting office will be advised of the problem and requested to take corrective action.

The QA data are to be summarized and given to the Section Chief with the data set when completed. Each fall, the Section Chief will assign personnel to compile and summarize QA data for the year. These summaries, and all supporting documentation, will be made available to the Quality Assurance Office for revision of this document and calculation of up-dated control limits listed in Appendix II. These control limits which are calculated from historical data for each of the defined frequency of audits are the basis for our best estimates of a minimal quality assurance program which still insures that reliable results are reported.

IV. QUALITY ASSURANCE OF INSTRUMENT OPERATION

General

Each instrument must have a logbook in which the usage and the condition of the instrument are entered on a regular basis. The Chief of each Section is responsible for each instrument located in his Section and to insure that all instruments are properly used and that each instrument logbook is filled out in a timely manner. It is the responsibility of the user to enter all requested information in the logbook when the instrument is used. This logbook will be checked by the CRL QAC on a case by case basis.

A. Gas Chromatographs

The gas chromatographs are to be checked for the detector linearity (useable rangus) every time a new or reconditioned detector and/or electrometer is installed. This information should be summarized in the instrument logbook. The Chief, Organic Section, will assign personnel to perform this as needed. The standard used should be a hydrocarbon for the flame ionization detector, a chlorinated hydrocarbon for the E.C. detector and a phosphorous containing organic compound for the flame photometric detector. The actual compound depends on the gas chromatographic column used in the instrument. Before the instrument is used to analyze "real" samples, a standard (chosen as described above) and a blank (air injection) are to be analyzed. The sensitivity setting when analyzing the blank should be set at the highest level which will be used to analyze any of the "real" samples. The purpose of analyzing a standard is to check the general overall performance of the instrument. The air blank, which is to be analyzed after the standard, is the check for column bleed and syringe cleaning technique. Corrective actions are to be taken by the operator if the two analyses indicate unsatisfactory performance (as dictated by the type of "real" samples to be analyzed). The Section Chief is to be consulted when any ambiguity arises.

B. Balances

The balances are to be checked once each month or prior to preparing a new set of primary standards. The Section Chief will designate a person responsible for performing the balance check. A record of this is to be kept in the logbook. The check consists of weighing and recording a set of standard weights. For the analytical balances the following weights are to be used: 10 gm, 1 gm and 10 mg. For open pan balances the following weights are to be used: 1 kg, 10 gm and 1 gram.

C. Infra-red Spectrophotometers

The gain, balance, 0% and 100% transmission are to be checked daily prior to instrument use. If any of these controls are adjusted, mention should be made in the logbook. Furthermore, a spectrum of a standard polyethelene film is to be taken daily, prior to instrument use. If the spectrum is not identical to the published standard polyethelene spectrum the Chief of the Section should be promptly notified. These spectra should be kept in a folder in a file cabinet designated by the Chief, Organic Section. The first person using the instrument on a given day is responsible for performing the above checks.

D. Gel Permeation Chromatograph

Spikes (sample plus added components), blanks (just solvent) and control samples (blank plus added components) are to be analyzed with every ten samples. If the blanks indicate incomplete elution or if the control or spike do not indicate greater than 90% recovery the Chief of the Organic Section is to be promptly notified.

E. High Pressure Liquid Chromatograph

The same analytical quality control used for gas chromatographs is used for this instrument. In addition, the same solvents and volumes as are injected for laboratory and reference standards are to be used for samples.

F. Computerized Gas Chromatograph/Mass Spectrophotometer

The mass spectrometer is to be calibrated each day it is used after all the electronics (except the filament and computer) have been turned on for at least ½ hour. A mass spectra of the standard (FC43 or of PFTPP) is to be collected and saved after the instrument is calibrated. The mass range should include from AMU 33 to AMU 650. This spectrum should be filed in a mass spectra AQC binder. The collected spectrum should be compared to that of the same standard which was collected after the instrument's resolution and sensitivity were properly set. If the intensity of any of the corresponding AMU peaks in the two spectra differ by more than 10%, the instrument's resolution is to be adjusted. The calibration, resolution and sensitivity adjustments are to be made in accordance with the procedures given in the instrument manual accompanying the instrument or in accordance with the latest procedures written by the Mass Spec Users Group.

A spectrum of FC43 or PFTPP is also to be taken at the end of the day and compared to the spectrum taken right after calibration. If the intensity of corresponding AMU peaks in the two spectra differ by more than 10%, the Chief of the Organic Section is to be consulted as to the disposition of the data collected during the day.

The gas chromatograph portion of the instrument is checked by analyzing a standard (determined by the type of gas chromatographic column used) and a solvent blank before any real samples are analyzed. The former is to check the performance of the gas chromatograph and of the separator. The latter is to check for column bleed. If the results don't indicate satisfactory performance, corrective actions (change to a new column, clean the separator, change the septum, etc.) are to be taken by the operator.

G. Hewlett-Packard (HP) Data System

The HP chromatograph data system should be made operational as outlined in the operation manual, with the following additions:

1) A linear range plot (using Aldrin) showing the concentration range over which the total system (G.C. detector, interface electronics and data system) is linear, is to be obtained any time a new or reconditioned detector is installed and after any electronics involved with the detector signal conditioning are changed. This plot is to be placed in the logbook provided for the instrument.

2) The window, i.e., the maximum variation allowed in the RRT of a peak, used for peak identification is to be no greater than 3x the standard deviation in the RTT of the peak obtained by analyzing a set of standards a minimum of ten times.

3) A chart is to be kept in the logbook (for each E.C. detector) on which the response factor for Aldrin is recorded on a daily basis. The Chief of the Organic Section is to be notified and consulted when the response factor shows a marked decrease in detector sensitivity.

4) Calibration standards are to be made with compounds of known

maximum possible purity. New standards should be made at least every 6 months and more often in questionable cases. The standards solutions are to be stored in an explosion-proof refrigerator when not in use and each new batch of standards should be compared to an old batch to insure they are correct.

H. Atomic Absorption Spectrometers

The atomic absorption instruments (PE-303, PE-306, PE-503, IL-453 and Varian-600) are to be set up according to the manufacturer's specifications. If changes are necessary, they should be documented in the instrument logbook and initialed by the first line supervisor.

A blank, two calibration standards and a laboratory quality control sample are run daily prior to the analysis of actual samples. The calibration standard concentrations are to be in the linear range of the absorbance verses concentration curve. If the sensitivity (concentration required to give an absorbance of 0.0044 absorbance units) differs from the previously established value for the metal being run by more the 2% or if the standard is outside the control limits the fact should be recorded in the logbook, the problem corrected and the above steps repeated. If the problem cannot be corrected, consult the first line supervisor.

I. Emission Spectrometer System

Quantitative instrument control checks listed in Section 7.0 of the document titled "Simultaneous Analysis of Liquid Samples for Metals by Inductively Coupled Argon Plasma - Atomic Emission Spectroscopy (ICAP-AES)" will be obtained once data manipulation by the NOVA-840 computer is finalized. In the interim, the following quality control checks will be used to assess instrument performance.

1) The concentration readout of the 1000 μg/l calibration standard should be within ± 50 μg/l during a sample analysis run. Restandardization becomes mandatory if this limit is exceeded.

2) A laboratory quality control standard will be analyzed each day samples are run and these results will be kept in a logbook. If the difference between the running average and the daily analysis exceed 5%, the source of this disagreement should be identified and corrected, prior to the analyses of "real" samples.

J. Technicon Auto Analyzers

The electronic zero and full scale are set and the colorimeters, recorders, and printer are synchronized. The baseline is set with wash solution and reagents running. The instrument is standardized with a mid-scale standard, followed by a high and a low standard. These are followed by two blanks and two control standards. The control standards are prepared by an idependent analyst. The remainder of the 40 sample wheel is loaded with samples. One duplicate is run with each wheel. The duplicates are spaced at least 10 samples apart. Each wheel after the first follows the same pattern, but only the first is used for standardization. The second of each pair of blanks, the control standards, the duplicate samples, and the instrument cal are recorded in the logbook. If the control standards or blanks are out of control limits, or if the cal is unusually high or low, the data associated with these values are not accepted. The problem is identified and corrected, the instrument is recalibrated, and the samples are rerun.

If a sample of high concentration is followed by a sample of low concentrations so that the second sample is on the shoulder of the first, the second sample is repeated. The data of preparation of all reagents and standards, columns, etc., are recorded in the lobgook. Reference standards and results, and any other significant information concerning the analyses are also recorded in the lobgook.

Specific procedures for individual automated methods are as follows:

NH_3-N and NO_2+NO_3-N: Turbid samples are centrifuged prior to analysis.

TP - Persulfate Method: Non-uniform samples are blended prior to digestion. The calibration standards are made from an inorganic phosphorus compound and the control standards are made from an organic phosphorus compounds. If a sample exceeds the full scale concentration value, the original sample is diluted and redigested. Turbid samples are centrifuged prior to analysis.

TP + TKN - Kjeldahl Method: Same as TP - persulfate method, but loading pattern begins with set standard, followed by 3 blanks, 3 calibration standards, 2 control standards, then samples. The instrument is recalibrated for every 40 sample set. The baseline is set with the blanks. If a sample results in an odd-shaped peak, the original is diluted and redigested.

COD: Non-uniform samples are blended prior to digestion. The instrument is zeroed with four blanks which preceded the first loading pattern. Any samples that appear to have leaked during digestion are repeated.

Mercury: A complete standard curve is prepared each day samples are analyzed. The standards are prepared from methylmercuric chloride. Control standards, made from QAO reference standards, are analyzed each day. Criteria used to establish that the HGZ Spectro Products Mercury analyzer and automated sample handling system are performing properly are: The amount of current applied to the mercury and reference lamps to balance the detector, the signal-to noise ratio at a constant damping and the rate of baseline drift.

Sulfate: To eliminate interference from cations, the samples are passed through an ion-exchange column. Calcium is added to a standard which is exceeded.

K. Total Organic Carbon Analyzers

The instrument is set up according to the manufacturer's specifications. Whenever a column is repacked or any other changes are made, a five standard calibration curve is run. The high level standard is set at full scale. This standard curve is used for subsequent analysis. Each day that the instrument is used, the high level standards is set at full scale. Two control standards and a blank are then injected.

All standards, blanks and controls are run in duplicate, and the duplicates must agree to within one chart unit. The control standards and blank are repeated approximately once each hour of analysis. All samples are acidified and blended before injection. They are then re-blended and reinjected until the peak height no longer decreases. The values are accepted when two or three replicate analyses agree to within one chart unit. Duplicate samples are run approximately once each hour. They are spaced at least 10 samples apart. The blank, the control standards, the spaced duplicates, and the instrument gain are recorded in the logbook. If the control standards or blank are out of control limits, the data associated with these values are not accepted. The problem is identified and corrected, the instrument is recalibrated, and the samples are rerun.

L. Sample Drying Oven

The oven temperature is checked with a thermometer each time it is used.

M. Diluters

The diluter is checked by diluting a standard each day that the diluter is used. The results are recorded in the lobgook under the parameter for which the diluter is used.

N. Dispensers

Before the dispenser is used, the solution is visually inspected to be sure that the reagent is in solution.

O. Titralyzers

The titralyzer is calibrated with a pH 4 buffer, and two controlled standards are run and recorded in a logbook.

P. Specific Electrode Ionanalyzers

The meter is calibrated with three standards of different concentrations and a record is kept of the control standards.

Q. pH Meters

A daily calibration is run using a pH 4 and pH 7 buffer. Also two control standards are run and recorded in a logbook.

R. Turbidimeters

The instrument is calibrated on three different ranges with Formazin or Jackson turbidity standards.

S. Conductivity Meters

Samples and standards are incubated at 25°C in a 2095 Forma Scientific Bath. The two control standards are recorded in a logbook.

T. Dissolved Oxygen Meters

The meter is checked for zero and temperature before each use. The DO is determined by the Winkler Method. Two bottles are checked on the meter, and the meter is calibrated to read this concentration.

U. **Controlled Environmental Rooms**

The environmental room is thermostatically controlled at 20°C. A Hg thermometer is kept inside the incubator to check on the accuracy of the temperature controller and recorder.

V. **Ultra Micro Balances**

Before using the balance,the zero is checked and set. It is then calibrated at 10mg. During each set of weighings, the zero and the calibration is rechecked several times.

W. **Colorimeters**

All Spectronic 70 and 88 spectrophotometers are calibrated using a Chemetrics "Spectro-Standard" kit. The instruments are checked for: stray light rejection at 340 nm; wavelength accuracy at 360.9 nm, 418.4 nm, 453.2 nm, 536.2 nm and 637.5 nm using a holmium oxide filter; linearity between 400-900 nm at 13, 25, 40, 50 and 70% transmittance using neutral density filters; bandpass at 360 nm. If the instrument meets all of the specifications it is so labeled. If not, the instrument is serviced.

V. **A Definition of Terms and Mathematical Concepts**

During the past is has proven to be necessary to define several terms used in the following tables in order to avoid confusion. In addition, the CRL has found it to be convenient to represent the magnitude of scatter or error associated with data from selected performance audits by a single number. These terms are defined and used in this document as follows:

1) Reagent Blank - A sample prepared by adding distilled water

and preservative to a sample bottle and then analysing as a routine sample.

2) Duplicate Analyses - The collection of two samples from the same field site which are analyzed at different times but usually on the same day.

3) Relative percent error for duplicate analyses - 100 times the difference in the measured concentration for the duplicate pair divided by the average of the concentration.

4) Laboratory Control Standard - A standard of known concentration prepared by the analyst.

5) Relative percent error for laboratory control standards - The difference between the measured value and the theoretically correct value times 100 and divided by the correct value.

6) Calibration standard - A standard prepared by the analyst for the purpose of calibrating an instrument. Laboratory control standards are prepared independently from calibration standards for most methods.

7) Spiked sample - A solution prepared by adding a measured volume of a laboratory control standard to a known volume of a sample.

8) Percent recovery of a sample spike - The measured concentration of the spiked solution minus the measured sample concentration times 100 and divided by the concentration resulting from the spike.

9) Reference Standard - A solution obtained from an outside source having a known value and analyzed as a blind sample.

10) Relative percent error of a Reference Sample Analysis - The difference between the correct and measured values times 100 and divided by the correct concentration.

11) Detection limit - That number obtained by adding two standard deviations to the average value obtained for a series of reagent blanks that are analyzed over a long time (several weeks or months) period.

Appendix I

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ABBREVIATED SUMMARY OF ANALYTICAL METHODS IN CURRENT USE AT THE CENTRAL REGIONAL LABORATORY (CRL)

A LIST OF ANALYTICAL PROCEDURES IN CURRENT USE AT CRL IS GIVEN IN THE TABLE BELOW. A COPY OF EACH METHOD MAY BE OBTAINED BY SENDING A WRITTEN REQUEST TO THE CENTRAL REGIONAL LABORATORY, REGION V, US EPA, 1819 W PERSHING RD. CHICAGO, ILL. 60609 PRIOR TO DECEMBER 1, 1977. AFTER THAT DATE THE ADDRESS OF THE CRL WILL BE 536 S CLARK STREET, CHICAGO, ILL 60605. THE METHODS ARE IDENTIFIED BY CRL METHOD NUMBER AND NAME. WHERE POSSIBLE, WE HAVE ALSO IDENTIFIED A METHOD REFERENCE IN THE PUBLIC LITERATURE WHICH IS IDENTICAL TO OR VERY SIMILAR TO THE CRL METHOD.

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ABBREVIATIONS AND REMARKS

1) RB IS USED TO MEAN -REAGENT BLANK. THE REAGENT BLANK IS A "TOTAL METHOD BLANK IN WHICH THE SOLUTION IS EXPOSED TO THE SAMPLE BOTTLE AND PRESERVATIVES FOR A SPECIFIED HOLDING TIME AND THEN ANALYZED AS A REAL SAMPLE.

2) DS IS USED TO MEAN - DUPLICATE SAMPLE ANALYSIS IN WHICH IDENTICAL SAMPLES ARE COLLECTED IN THE FIELD AND ANALYZED AS SEPARATE SAMPLES.

3) LD IS USED TO MEAN - LABORATORY DUPLICATE ANALYSIS - TWO ALIQUOTS ARE TAKEN FROM A SINGLE SAMPLE AND ANALYZED SEPARATELY. THESE ARE SOLUTIONS PREPARED BY THE ANALYST WHO PERFORMS THE TEST.

4) S IS USED TO MEAN - SPIKED SAMPLE. A SAMPLE IS ANALYZED; A MEASURED AMOUNT OF A LCS IS ADDED AND THE RESULTING SOLUTION ANALYZED TO SEE IF THE DIFFERENCE IN RESULTS IS COMPARABLE TO THE AMOUNT OF MATERIAL ADDED.

5) RS IS USED TO MEAN - REFERENCE STANDARD. A REFERENCE STANDARD IS A BLIND UNKNOWN PREPARED BY ANOTHER AGENCY (NATIONAL BUREAU OF STANDARDS, ENVIRONMENTAL MONITORING AND SUPPORT LABORATORY-CINCINNATI OR RESEARCH TRIANGLE PARK, ETC.)WHICH HAS A "TRUE" VALUE.

6) ALT. TEST IS USED TO MEAN - ALTERNATE TEST PROCEDURE. MANY OF THESE HAVE BEEN APPROVED FOR USE IN THE NPDES PROGRAM.

7) CRL PROC. IS USED TO MEAN - A CENTRAL REGIONAL LABORATORY PROCEDURE-THESE METHODS GENERALLY INCLUDE MINOR MODIFICATION (AUTOMATION FOR EXAMPLE) OF STANDARD PROCEDURES

THE CRL DEFINES THE METHOD DETECTION LIMIT AS THAT OBTAINED BY SUMMING THE MEAN CONCENTRATION VALUE OBTAINED FROM REAGENT BLANKS RUN OVER A GIVEN TIME PERIOD (USUALLY 6 MONTHS) TO TWICE THE STANDARD DEVIATION OF THESE REAGENT BLANKS. HOWEVER, THE DETECTION LIMIT IS RAISED FOR ANY GIVEN MEASUREMENT WHEN THE ANALYST BELIEVES THERE IS AN INTERFERENCE (SUCH AS A HIGH RUN REAGENT BLANK) WHICH INVALIDATES THE LOWER CONCENTRATIONS. LABORATORY CONTROL STANDARDS AT CONCENTRATIONS APPROACHING THE DETECTION LIMITS ARE ANALYZED FOR CONFIRMATION.

METHOD NUMBER	S E C	MEASURED PARAMETER NAME	STORET NUMBER	SAMPLE TYPE	METHOD REFERENCE	DETECT LIMIT	REPORTING UNITS	METHOD DESCRIPTION ---------->
3	B	ALGAL BIOASSAY			REF. 8-PAGE 2	6	CELLS/ML	STATIC BIOASSAY
6	B	ALGAL BIOASSAY			REF. 8-PAGE 2	6	CELLS/ML	FLOW THROUGH ALGAL BIOASSAY
9	B	ATP		WATER	REF. 8-PAGE 30	1	NG/L	ATP-FLUORESCENCE-LUCIFERINASE
12	B	CARBON-14	70990	WATER	REF. 8-PAGE	100	MGC/M3HR	C-14 LIQUID SCINT.
15	B	CHLOROPHYLL	32217	WATER	REF. 8-PAGE 13	0.5	UG/L	FLUORESCENE SPECTROSCOPY
18	B	CHLOROPHYLL	32230	WATER	REF. 4-PAGE 14	3.6	UG/L	UV-TRICHROMATIC PROCEDURE
21	B	FECAL COLIFORM	31616	WATER	REF. 1-P937	1	#/100ML	MEMBRANE FILTER
24	B	FISH BIOASSAY			REF. 8-PAGE 2	0	%	FLOW THROUGH-96 HOURS
27	B	FISH-BIOASSAY	61402		REF. 8-PAGE 2	0	%	STATIC FISH BIOASSAY-96 HRS.
30	B	MACRO-BIOASSAY			REF. 8-PAGE 2	0	%	FLOW THROUGH MACROINVERTEBRATE-96 HR.
33	B	MACRO-BIOASSAY		WATER	REF. 8-PAGE 2	0	%	STATIC MACROINVERTEBRATE 24-96 HR.
36	B	PERIPHYTON	60400	GLAS/SLIDE	REF. 4-PAGE 3	6	CELLS/UNIT	SEDGWICK-RAFTER
39	B	PERIPHYTON	60400	GLAS/SLIDE	REF. 4-PAGE 8	20	CELLS/UNIT	INVERTED MICROSCOPE

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 42   B PERIPHYTON        60400  GLAS/SLIDE  REF. 4-PAGE 4    1     X OF TOTAL DIATOM ANALYSES
 45   B PHYTOPLANKTON     60050  WATER       REF. 4-PAGE 8    6     #/ML       SEDGWICK-RAFTER
 48   B PHYTOPLANKTON     60050  WATER       REF. 4-PAGE 10   20    #/ML       INVERTED MICROSCOPE
 51   B PHYTOPLANKTON     60400  WATER       REF. 4-PAGE 11   1     X OF TOTAL DIATOM ANALYSIS
 54   B SED. BIOASSAY            SEDIMENT    REF. 8-PAGE 8    0     X          96 HR. EXPOSURE OF 4 SPECIES TO SED. VIA WATER
 57   B ZOOPLANKTON       60990  WATER       REF. 4-PAGE 13   1     #/M3       COUNTING CHAMBER
 60   B ZOOPLANKTON              WATER       REF. 4-PAGE 13   0.02  MG/M3      DRY AND ASH FREEWEIGHT
 63   O ALDRIN                   FISH        CRL PROC         1     MG/KG      DUAL COL. -ELECTRON CAPTURE-GC
 66   O BETA-BHC                 FISH        CRL PROC.        1     MG/KG      DUAL COL. -ELECTRON CAPTURE-GC
 69   O CHLOROBENZILATE          FISH        CRL PROC.        10    MG/KG      DUAL COL. -ELECTRON CAPTURE-GC
 72   O O P'-DDD                 FISH        CRL PROC.        2     MG/KG      DUAL COL. -ELECTRON CAPTURE-GC
 75   O P P'-DDD                 FISH        CRL PROC.        2     MG/KG      DUAL COL. -ELECTRON CAPTURE-GC
 78   O O P'-DDE                 FISH        CRL PROC.        2     MG/KG      DUAL COL. -ELECTRON CAPTURE-GC
 81   O P P'-DDE                 FISH        CRL PROC.        2     MG/KG      DUAL COL. -ELECTRON CAPTURE-GC
 84   O O P'-DDT                 FISH        CRL PROC.        3     MG/KG      DUAL COL. -ELECTRON CAPTURE-GC
 87   O P P'-DDT                 FISH        CRL PROC.        3     MG/KG      DUAL COL. -ELECTRON CAPTURE-GC
 90   O DIELDRIN                 FISH        CRL PROC.        2     MG/KG      DUAL COL. -ELECTRON CAPTURE-GC
 93   O DIBUTYLPHTHALAT          FISH        CRL PROC.        10    MG/KG      DUAL COL. -ELECTRON CAPTURE-GC
 96   O DPCA                     FISH        CRL PROC.        2     MG/KG      DUAL COL. -ELECTRON CAPTURE-GC
 99   O ENDOSULFAN I             FISH        CRL PROC.        2     MG/KG      DUAL COL. -ELECTRON CAPTURE-GC
102   O ENDOSULFAN II            FISH        CRL  PROC.       2     MG/KG      DUALCOL. -ELECTRON CAPTURE-GC
105   O ENDRIN                   FISH        CRL PROC.        3     MG/KG      DUAL COL. -ELECTRON CAPTURE-GC
108   O ETHYLHEXYL PHTH          FISH        CRL PROC.        10    MG/KG      DUAL COL. -ELECTRON CAPTURE-GC
111   O GAMMA CHLORDANE          FISH        CRL PROC.        2     MG/KG      DUAL COL. -ELECTRON CAPTUURE-GC
114   O HEPACHLOR EPOXI          FISH        CRL PROC.        2     MG/KG      DUAL COL. -ELECTRON CAPTURE-GC
117   O HEXA-CHL-BENZEN          FISH        CRL PROC.        5     MG/KG      DUAL COL. -ELECTRON CAPTURE-GC
120   O 2-4D-IPR ESTER           FISH        CRL PROC.        2     MG/KG      DUAL COL. -ELECTRON CAPTURE-GC
123   O ISODRIN                  FISH        CRL PROC.        2     MG/KG      DUAL COL. -ELECTRON CAPTURE-GC
126   O LINDANE                  FISH        CRL PROC.        5     MG/KG      DUAL COL. -ELECTRON CAPTURE-GC
129   O METHOXYCLOR              FISH        CRL PROC.        5     MG/KG      DUAL COL. -ELECTRON CAPTURE-GC
132   O MIREX                    FISH        CRL PROC.        5     MG/KG      DUAL COL. -ELECTRON CAPTURE-GC
135   O TETRAFIDON               FISH        CRL PROC.        10    MG/KG      DUAL COL. -ELECTRON CAPTURE-GC
138   O TREFLAN                  FISH        CRL PROC.        5     MG/KG      DUAL COL. -ELECTRON CAPTURE-GC
141   O ZYTRON                   FISH        CRL PROC.        5     MG/KG      DUAL COL. -ELECTRON CAPTURE-GC
144   O AZINPHOS-METHYL          WATER       REF. 7           30    UG/L       DUAL COL. -FLAME PHOTOMETRIC-GC
147   O COUMAPHOS                WATER       REF. 7           30    UG/L       DUAL COL. -FLAME PHOTOMETRIC-GC
150   O DEF                      WATER       REF. 7           2     UG/L       DUAL COL. -FLAME PHOTOMETRIC-GC
153   O DIAZINON          39570  WATER       REF. 7           3     UG/L       DUAL COL. -FLAME PHOTOMETRIC-GC
156   O DURSBAN                  WATER       REF. 7           2     UG/L       DUAL COL. -FLAME PHOTOMETRIC-GC
159   O DYFONATE                 WATER       REF. 7           3     UG/L       DUAL COL. -FLAME PHOTOMETRIC-GC
162   O EPN                      WATER       REF. 7           1     UG/L       DUAL COL. -FLAME PHOTOMETRIC-GC
165   O ETHION            39398  WATER       REF. 7           8     UG/L       DUAL COL. -FLAME PHOTOMETRIC-GC
168   O MALATHION         39530  WATER       REF. 7           4     UG/L       DUAL COL. -FLAME PHOTOMETRIC-GC
171   O METHYLPARATHION   39600  WATER       REF. 7           4     UG/L       DUAL COL. -FLAME PHOTOMETRIC-GC
174   O PARATHION         39540  WATER       REF. 7           4     UG/L       DUAL COL. -FLAME PHOTOMETRIC-GC
177   O PHENCAPTAN               WATER       REF. 7           10    UG/L       DUAL COL. -FLAME PHOTOMETRIC-GC
180   O PHORATE                  WATER       REF. 7           15    UG/L       DUAL COL. -FLAME PHOTOMETRIC-GC
183   O RONNEL                   WATER       REF. 7           7     UG/L       DUAL COL. -FLAME PHOTOMETRIC-GC
186   O PCB'S-1016/1242          FISH        CRL PROC.        1     MG/KG      SOXHLET-GEL PERMEATION-GC
189   O PCB'S-1248               FISH        CRL PROC.        1     MG/KG      SOXHLET-GEL PERMEATION-GC
192   O PCB'S-1254               FISH        CRL PROC.        1     MG/KG      SOXHLET-GEL PERMEATION-GC
195   O PCB'S-1260               FISH        CRL PROC.        1     MG/KG      SOXHLET-GEL PERMEATION-GC
198   O PCB'S-1016/1242   39499  SEDIMENT    REF.  5          1     MG/KG      SOXHLET EXT. -FLORISIL-GC
201   O PCBS-1248         39503  SEDIMENT    REF. 5           1     MG/KG      SOXHLET-FLORISIL-GC
204   O PCBS-1254         39507  SEDIMENT    REF. 5           1     MG/KG      SOXHLET-FLORISIL-GC
207   O PCBS-1260         39511  SEDIMENT    REF. 5           1     MG/KG      SOXHLET-FLORISIL-GC
210   O PCBS-1016/1242    39496  WATER       REF. 6           200   NG/L       DUAL COL. -ELECTRON CAPTURE-GC
213   O PCBS-1248         39500  WATER       REF. 6           200   NG/L       DUAL COL. -ELECTRON CAPTURE-GC
216   O PCBS-1254         39504  WATER       REF. 6           200   NG/L       DUAL COL. -ELECTRON CAPTURE-GC
219   O PCBS-1260         39508  WATER       REF. 6           200   NG/L       DUAL COL. -ELECTRON CAPTURE-GC
222   O ALDRIN                   SEDIMENT    ALT. TEST        1     MG/KG      DUAL COL. -ELECTRON CAPTURE-GC
225   O BETA-BHC                 SEDIMENT    ALT TEST         1     MG/KG      DUAL COL. -ELECTRON CAPTURE-GC
228   O CHLOROBENZILATE          SEDIMENT    ALT. TEST        10    MG/KG      DUAL COL. -ELECTRON CAPTURE-GC
231   O DCPA                     SEDIMENT    ALT. TEST        2     MG/KG      DUAL COL. -ELECTRON CAPTURE-GC
234   O O P'-DDD          39316  SEDIMENT    ALT. TEST        2     MG/KG      DUAL COL. -ELECTRON CAPTURE-GC
237   O P P'-DDD          39311  SEDIMENT    ALT. TEST        2     MG/KG      DUAL COL. -ELECTRON CAPTURE-GC
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240	O	O P'-DDE		SEDIMENT	ALT. TEST	2	MG/KG	DUAL COL. -ELECTRON CAPTURE-GC
243	O	P P'-DDE	39321	SEDIMENT	ALT. TEST	2	MG/KG	DUAL COL. -ELECTRON CAPTURE-GC
246	O	O P'-DDT	39306	SEDIMENT	ALT. TEST	3	MG/KG	DUAL COL. -ELECTRON CAPTURE-GC
249	O	P P'-DDT	39301	SEDIMENT	ALT. TEST	3	MG/KG	DUAL COL. -ELECTRON CAPTURE-GC
252	O	DIBUTYL PHTHALA		SEDIMENT	ALT. TEST	10	MG/KG	DUAL COL. -ELECTRON CAPTURE-GC
255	O	DIELDRIN	39383	SEDIMENT	ALT. TEST	2	MG/KG	DUAL COL. -ELECTRON CAPTURE-GC
258	O	ENDOSULFAN I		SEDIMENT	ALT. TEST	2	MG/KG	DUAL COL. -ELECTRON CAPTURE-GC
261	O	ENDOSULFAN II		SEDIMENT	ALT. TEST	2	MG/KG	DUAL COL. -ELECTRON CAPTURE-GC
264	O	ENDRIN	39393	SEDIMENT	ALT. TEST	3	MG/KG	DUAL COL. -ELECTRON CAPTURE-GC
267	O	ETHYLHEXYLPHTHA		SEDIMENT	ALT. TEST	10	MG/KG	DUAL COL. -ELECTRON CAPTURE-GC
270	O	GAMMA CHLORDANE		SEDIMENT	ALT. TEST	2	MG/KG	DUAL COL. -ELECTRON CAPTURE-GC
273	O	HEPTA-CL-EPOXID		SEDIMENT	ALT. TEST	2	MG/KG	DUAL COL. -ELECTRON CAPTURE-GC
276	O	HEXA-CL-BENZENE		SEDIMENT	ALT. TEST	5	MG/KG	DUAL COL. -ELECTRON CAPTURE-GC
279	O	2-4-IPR-ESTER		SEDIMENT	ALT. TEST	2	MG/KG	DUAL COL. -ELECTRON CAPTURE-GC
282	O	ISODRIN	39433	SEDIMENT	ALT. TEST	2	MG/KG	DUAL COL. -ELECTRON CAPTURE-GC
285	O	LINDANE	39783	SEDIMENT	ALT. TEST	5	MG/KG	DUAL COL. -ELECTRON CAPTURE-GC
288	O	METHOXYCLOR	39481	SEDIMENT	ALT. TEST	5	MG/KG	DUAL COL. -ELECTRON CAPTURE-GC
291	O	MIREX		SEDIMENT	ALT. TEST	5	MG/KG	DUAL COL. -ELECTRON CAPTURE-GC
294	O	TETRAFIDON		SEDIMENT	ALT. TEST	10	MG/KG	DUAL COL. -ELECTRON CAPTURE-GC
297	O	TREFLAN		SEDIMENT	ALT. TEST	5	MG/KG	DUAL COL. -ELECTRON CAPTURE-GC
300	O	ZYTRON		SEDIMENT	ALT. TEST	5	MG/KG	DUAL COL. -ELECTRON CAPTURE-GC
303	I	ALK. TOTAL	00410	WATER	1-SEC. 403	5	MG/L	FISHER TITRALYZER-SEC403-REF. 1
306	I	ALK	00410	WATER	REF1-PG4	5	MG/L	MANUAL METHOD BY TITRATION
309	I	ALK.		SEDIMENT				SUSPEND & ANALYZE BY TITRATION
312	I	AMMONIA-TOT.	00610	WATER	9-154-71W	0.03	MG/L	NITROPRUSSIDE
315	I	AMMONIA	00610	WATER	CAL. PROC.	0.002	MG/L	LAKE LEVEL-TECHII-NITROPRUSSIDE
318	I	AMMONIA	00610					
321	I	AMMONIA	00610					
324	I	AMMONIA-SED	00011	SEDIMENT	9-154-71W	0.03	MG/KG	NITROPRUSSIDE
327	I	BOD-5 DAY	00310	WATER	ALT. TEST	2	MG/L	MICRO MODIFICATION REF. 1SEC507
330	I	BOD		WATER	REF. 2-P550			STANDARD METHOD
333	I	CHLORIDE-TOT.	00940	WATER	9-99-70W	2	MG/L	FERRICYANIDE
336	I	CHLORIDE	00940	WATER	REF. 9-99-7	0.2	MG/L	AUTOMATEDFERRICYANIDE
339	I	CHROMIUM VI-TOT	01032	WATER	1-SEC307B	0.010	MG/L	DIPHENYLCARBAZIDE COLORIMETRIC
342	I	COD-TOTAL	00340	WATER	REF. 11	3	MG/L	MICRO
345	I	COD	00335	WATER	REF. 11			AUTOMATED COLOREMETRIC-LOW LEVEL
348	I	COD	00340	WATER	REF. 1-PAGE	5	MG/L	FERROUS AMMONIUM SULFATE TITRATION
351	I	COD	00339	SEDIMENT	ALT. TEST	3	MG/L	MICRO DIGESTION
354	I	CONDUCTIVITY	00095	WATER	1-SEC. 205	0.1	US	
357	I	CYANIDE-TOT.	00720	WATER	9-315-74W	0.005	MG/L	MAN. DIST. &AUTO. COLORIMETRY-BARBITURIC ACID
360	I	CYANIDE	00720	WATER	REF. 1-PAGE	5		STANDARD
363	I	CYANIDE	00720	WATER	REF. 2-PAGE			SPECIFIC ION ELECTRODE
366	I	CYANIDE	00721	SEDIMENT	REF. 1-PAG			DISTILLATION & METHOD 357
369	I	CYANIDE	00721	SEDIMENT	REF. 2 PAGE			DISTILLATION-SPECIFIC ION ELECTRODE
372	I	FLUORIDE-TOT.	00951	WATER	9-380-75WE	0.1	MG/L	DISTILLATION & AUTO. SELECTIVE ION ELECTRODE
375	I	FLUORIDE	00951	WATER	9-380-75W			TECHNICON WITHOUT DISTILLATION
378	I	FLUORIDE	00951	WATER	REF2-P0372			DISTILL. FOLLOWED BY MANUAL' SPEC. ION ELECTRODE
381	I	FLUORIDE		SEDIMENT	9-380-75WE	0.1	MG/L	MANUAL DISTILLATION THEN METHOD 375
384	I	FLUORIDE		SEDIMENT	REF1-P065			MANUAL DISTILL. THEN AUTO. SPECIFIC ION ELECTROD
385	I	HARDNESS	00900	WATER	NONE	0.01	MG/L	CALCULATED FROM METAL DATA
387	I	MBAS TOTAL	38260	WATER	1-SEC512A	0.05	MG/L	
390	I	MERCURY-TOT	71900	WATER	REF. 19	0.1	UG/L	AUTO. FLAMELESS AA
393	I	MERCURY	71921	SEDIMENT	REF. 19	0.1	UG/L	AUTO. FLAMELESS AA
394	I	MERCURY		SEDIMENT	REF. 21			AUTOMATED FLAMELESS AA
396	I	NITRATE-NITRITE	00630	WATER	9-158-71W	0.03	MG/L	CADMIUM REDUCTION
399	I	NITRATE-NITRITE	00630	WATER	9-158-71W	0.003	MG/L	LOW LEVEL CADMIUM REDUCTION
402	I	NITRITE-TOTAL	00615	WATER	9-158-71W	0.03	MG/L	DIAZOTIZATION REACTION
405	I	PH-LAB	00403	WATER	1-SEC. 424	0.1	PH UNIT	PH METER
408	I	PHENOLICS-TOT.	32730	WATER	9-127-71W	5	UG/L	DISTILLATION & AUTO. 4AAP COLORIMETRY
411	I	PHENOLICS	32730	WATER	REF1-P0239			STANDARD METHODS
414	I	PHENOLICS	32730	WATER	9-127-71W	5	UG/L	TECHNICON WITHOUT MANUAL DISTILLATION
417	I	PHENOLICS	32731	SEDIMENT	REF2-PG376			STANDARD METHOD
420	I	PHOSPHORUS-SRP	00671	WATER	9-155-71W	0.005	MG/L	SOLUBLE REACTIVE PHOSPHORUS BY MOLYBDATE
423	I	PHOSPHORUS	00665	WATER	REF. 23	0.02	MG/L	TKN DIGESTION & AUTO. MOLYBDATE
426	I	PHOSPHORUS	00665	WATER	REF. 1-P481			ACID DIGESTION
429	I	PHOSPHORUS	00665	WATER	9-155-71W	0.003	MG/L	PERSULFATE SEMI-AUTO. MOLYBDATE

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432	I	PHOSPHORUS			REF. 1-P476			VANADIUM MANUAL COLORIMETRIC PROCEDURE
435	I	PHOSPHORUS-TOT.	00668	SEDIMENT	ALT. TEST	0.02	MG/L	KJELDAHL DIGESTION-MOLYBDATE APPL.
438	I	RESIDUE-DISS.	00300	WATER	CRL PROC.	5	MG/KG	MICRO METHOD
441	I	RESIDUE-NONFILT	00530	WATER	1-SEC208D	2	MG/L	
444	I	RESIDUE-PERCENT	70318	SEDIMENT	1-SEC208A	5.0	%	
447	I	RESIDUE-VOL %	70322	SEDIMENT	1-SEC208B	0.5	%	
450	I	SILICA	00956	WATER	9-105-71W	0.2	MG/L	MOLYBDATE
453	I	SULFATE	00945	WATER	9-118-71W	3	MG/L	METHLTHYMOL BLUE
456	I	SULFATE	00945	WATER	9-118-71W	0.2	MG/L	LOW LEVEL M+B
459	I	SULFATE	00945	WATER	REF. 1-P496			STANDARD TURBIDIMETRIC METHOD
462	I	SULFIDE-TOTAL	00745	WATER	REF. 1-P503	0.1	MG/L	METHYLENE BLUE
465	I	TKN-TOTAL	00625	WATER	REF. 14	0.05	MG/L	MICO KJELDAHL
468	I	TKN-SEDIMENT	00627	SEDIMENT	CRL PROC.	0.05	MG/KG	MICRO KJELDAHL
471	I	TOC-TOTAL	00680	WATER	REF. 2-P236	2	MG/L	COMBUSTION-IR DETECTION
474	I	TOC		SEDIMENT				WATER SUSPENSION FOLLOWED BY METHOD 477
477	I	DOC-NON-VOL		WATER	REF. 15	0.2	MG/L	PERSULFATE DIGEST-IR DETECTION
480	I	TURBIDITY	00076	WATER	REF. 1-P132	1	JTU	NEPHELOMETRIC
483	I	SIEVE ANALYSIS		SEDIMENT	ALT. TEST	10	MG/KG	STANDARD & FRACTION
485	I	LEAD		AIR	REF. 20			HI-VOL FILTER EXT.-AA ANALYSES
486	I	OZONE		AIR	REF. 13	0.01	PPM	CONTINUOUS MONITOR
489	I	NITROGEN OXIDES		AIR	REF. 17	1	MG/KG	GAS BUBBLER
492	I	NITROGEN OXIDES		AIR				CONTINUOUS MONITOR
495	I	SULFUR DIOXIDE		AIR	REF. 17	1	MG/KG	GAS BUBBLER
498	I	SULFUR DIOXIDE		AIR				CONTINUOUS MONITOR
501	I	T. SUSP. PART.		AIR	REF. 16	2	MG/KG	HI-VOL
504	M	ALUMINUM	01105	WATER	12	50	UG/L	ICAP
507	M	BARIUM	01007	WATER	REF. 12	1	UG/L	ICAP
510	M	BERYLLIUM	02201	WATER	12	1	UG/L	ICAP
513	M	BORON	01022	WATER	12	5	UG/L	ICAP
516	M	CADMIUM	01027	WATER	12	2	UG/L	ICAP
519	M	CALCIUM	00916	WATER	12	.001	MG/L	ICAP
522	M	CHROMIUM	01034	WATER	12	1	UG/L	ICAP
525	M	COBALT	01037	WATER	12	4	UG/L	ICAP
528	M	COPPER	01042	WATER	12	1	UG/L	ICAP
531	M	IRON	01045	WATER	12	2	UG/L	ICAP
534	M	LEAD	01051	WATER	12	12	UG/L	ICAP
537	M	MAGNESIUM	00927	WATER	12	0.001	MG/L	ICAP
540	M	MANGANESE	01055	WATER	12	1	UG/L	ICAP
543	M	MOLYBDENUM	01062	WATER	12	5	UG/L	ICAP
546	M	NICKEL	01067	WATER	12	15	UG/L	ICAP
549	M	POTASSIUM		WATER	12	0.2	MG/L	ICAP
552	M	SILVER	01077	WATER	12	4	UG/L	ICAP
555	M	SODIUM	00929	WATER	12	0.005	MG/L	ICAP
558	M	TIN	01102	WATER	12	12	UG/L	ICAP
561	M	TITANIUM	01152	WATER	12	1	UG/L	ICAP
564	M	VANADIUM	01087	WATER	12	1	UG/L	ICAP
567	M	YTTRIUM		WATER	12	1	UG/L	ICAP
570	M	ZINC	01092	WATER	12	1	UG/L	ICAP
571	M	ALUMINUM		SEDIMENT		0.5	MG/L	FLAME AA-NITROUS OXIDE
572	M	BARIUM		SEDIMENT		0.5	MG/L	FLAME AA-NITROUS OXIDE
573	M	CADMIUM	01028	SEDIMENT	CRL PROC.	8	MG/KG	STRONG ACID DIGESTION & AA ANALYSES
574	M	CADMIUM		SEDIMENT		0.001	MG/L	FLAME AA
576	M	CHROMIUM	01029	SEDIMENT	CRL PROC.	10 MG/	MG/KG	STRNG ACID & AA
577	M	CHROMIUM		SEDIMENT		0.002	MG/L	FLAME AA
579	M	COPPER	01043	SEDIMENT	NONE	10	UG/L	STRONG ACID DIGESTION & AA ANALYSES
580	M	COPPER		SEDIMENT		0.001	MG/L	FLAME AA
582	M	IRON	01170	SEDIMENT	CRL PROC.	20	MG/KG	STRONG ACID DIGESTION & AA ANALYSES
583	M	IRON		SEDIMENT		0.003	MG/L	FLAME AA
585	M	LEAD	01052	SEDIMENT	CRL PROC.	20	MG/KG	STRONG ACID DIGESTION & AA
586	M	LEAD		SEDIMENT		0.008	MG/L	FLAME AA
588	M	MANGANESE	01053	SEDIMENT	NONE	10	UG/L	STRONG ACID DIGESTION & AA
589	M	MANGANESE		SEDIMENT		0.001	MG/L	FLAME AA
591	M	NICKEL	01068	SEDIMENT	CRL PROC.	30 MG/	MG/KG	STRONG ACID DIGESTION & AA
592	M	NICKEL		SEDIMENT		0.005	MG/L	FLAME AA
594	M	THALLIUM	1059	WATER		50	UG/L	AA
597	M	ZINC	01093	SEDIMENT	NONE	5	UG/L	STRNG ACID DIGESTION & AA

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598	M	ZINC		SEDIMENT		0.001	MG/L	FLAME AA
600	M	ANTIMONY	01097	WATER		2	UG/L	FLAMELESS AA
603	M	ARSENIC		WATER		0.5	UG/L	FLAMELESS AA
606	M	SELENIUM		WATER		2	UG/L	FLAMELESS AA
609	O	OIL IDENT.		OIL/WATER	NONE	1	MG/L	COMPARISON 2 SAMPLS FOR SAME OIL TYPE
612	O	OIL&GREASE	00556	WATER	R2-P0229	4	MG/L	FREON EXTRACT W/GRAVIMETRIC ANAL.
615	O	OIL&GREASE	00557	SEDIMENT		250	MG/KG	SOXHLET EXTRACT. W/GRAVIMETRIC ANAL.
618	O	METHYLENE CHLOR		WATER	REF. 18	1	UG/L	
621	O	CARBON TETRACHL		WATER	REF. 18	1	UG/L	
624	O	CHLOROFORM		WATER	REF. 18	1	UG/L	
627	O	1-2-DECHLOROETH		WATER	REF. 18	1	UG/L	
630	O	DICHLOROBROMOME		WATER	REF. 18	1	UG/L	
633	O	CHLORODIBROMOME		WATER	REF. 18	1	UG/L	
636	O	BROMOFORM		WATER	REF. 18	10	UG/L	
639	O	PHENOLIC COMP.		WATER	NONE	5	MG/L	AQUEOUS INJECTION
642	O	PHENOLIC COMP.		WATER		1	UG/L	EXTRACT. -PENTAFLUORO. DERIV. W/EC-GC
645	O	GENERAL ORGANIC		WATER	REF. 19	10	UG/L	EXTRACTION FOLLOWED BY GC/MS ANAL.
648	O	TREFLAN	90003	WATER	REF. 5	4	NG/L	DUAL COLUMN-ELECTRON CAPTURE-GC
651	O	HEXA-CHL-BENZEN	90001	WATER	REF. 5	40	NG/L	DUAL COLUMN-ELECTRON CAPTURE-GC
654	O	LINDANE	39782	WATER	REF. 5	4	NG/L	DUAL COLUMN-ELECTRON CAPTURE-GC
657	O	BETA-BHC	90002	WATER	REF. 5	4	NG/L	DUAL COLUMN-ELECTRON CAPTURE-GC
660	O	ALDRIN	39330	WATER	REF. 5	4	NG/L	DUAL COLUMN-ELECTRON CAPTURE-GC
663	O	ZYTRON		WATER	REF. 5	10	NG/L	DUAL COLUMN-ELECTRON CAPTURE-GC
666	O	ISODRIN	39430	WATER	REF. 5	6	NG/L	DUAL COLUMN-ELECTRON CAPTURE-GC
669	O	HEPTACHLOR EPOX	39420	WATER	REF. 5	4	NG/L	DUAL COLUMN-ELECTRON CAPTURE-GC
672	O	GAMMA CHLORDANE		WATER	REF. 5	4	NG/L	DUAL COLUMN-ELECTRON CAPTURE-GC
675	O	O-P'DDE		WATER	REF. 5	6	NG/L	DUAL COLUMN-ELECTRON CAPTURE-GC
678	O	P-P'DDE		WATER	REF. 5	6	NG/L	DUAL COLUMN-ELECTRON CAPTURE-GC
681	O	O P'-DDD		WATER	REF. 5	6	NG/L	DUAL COLUMN-ELECTRON CAPTURE-GC
684	O	O P'DDT		WATER	REF. 5	6	NG/L	DUAL COLUMN-ELECTRON CAPTURE-GC
687	O	P P'-DDD		WATER	REF. 5	6	NG/L	DUAL COLUMN-ELECTRON CAPTURE-GC
690	O	P P'-DDT		WATER	REF. 5	6	NG/L	DUAL COLUMN-ELECTRON CAPTURE-GC
693	O	MIREX		WATER	REF. 5	6	NG/L	DUAL COLUMN-ELECTRON CAPTURE-GC
696	O	METHOXYCLOR	39480	WATER	REF. 5	20	NG/L	DUAL COLUMN-ELECTRON CAPTURE-GC
699	O	2-4-D ISOPROPYL		WATER	REF. 5	40	NG/L	DUAL COLUMN-ELECTRON CAPTURE-GC
702	O	DI-N-BUTYL PHTH		WATER	REF. 5	2000	NG/L	DUAL COLUMN-ELECTRON CAPTURE-GC
705	O	DCPA	39770	WATER	REF. 5	6	NG/L	DUAL COLUMN-ELECTRON CAPTURE-GC
708	O	ENDOSULFAN I		WATER	REF. 5	10	NG/L	DUAL COLUMN-ELECTRON CAPTURE-GC
711	O	DIELDRIN	39380	WATER	REF. 5	10	NG/L	DUAL COLUMN-ELECTRON CAPTURE-GC
714	O	ENDRIN	39390	WATER	REF. 5	6	NG/L	DUAL COLUMN-ELECTRON CAPTURE-GC
717	O	CHLOROBENZILATE	39460	WATER	REF. 5	20	NG/L	DUAL COLUMN-ELECTRON CAPTURE-GC
720	O	ENDOSULFAN II		WATER	REF. 5	10	NG/L	DUAL COLUMN-ELECTRON CAPTURE-GC
723	O	DI-2 ETHYLHEXYL		WATER	REF. 5	2000	NG/L	DUAL COLUMN-ELECTRON CAPTURE-GC
726	O	TETRAFIDON	39808	WATER	REF. 5	50	NG/L	DUAL COLUMN-ELECTRON CAPTURE-GC
729	O	2-4-5-T	39740	WATER	NONE	10	NG/L	METHYLATION AND GAS CHROMATOGRAPHY
732	O	2-4-D	39730	WATER	NONE	10	NG/L	METHYLATION AND GAS CHROMATOGRAPHY
735	O	TOXAPHENE	39400	WATER	NONE	0.5	UG/L	EXTRACTION FLORISIL-GC
738	O	OIL&GREASE	00561	SEDIMENT	REF2-PAGE 232	2	MG/KG	SOXHLET AND MODIFIED IR PROCEDURE
741	O	OIL&GREASE	00560	WATER	REF2-PAGE 232	2	MG/L	MODIFIED(25ML SAMPLE VOL.)IR
744	O	HEXACHL-BENZENE	39700	WATER	NONE	10	UG/L	GAS CHROMATOGRAPHY MASS SPEC.
747								
750	M	LEAD		GASOLINE	22	0.001	GRAMS/GAL.	ATOMIC ABSORPTION

Appendix II

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U. S. EPA CENTRAL REGION 5 LAB             6 / 30 / 1977
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                 QUALITY ASSURANCE DATA FOR               ALGAL BIOASSAY
-------------------------------------------------------------------------
METHOD STORET PARAMETER        SAMPLE  METHOD                          *   *   METHOD REFERENCE
NUMBER NUMBER                  TYPE    DESCRIPTION
-------------------------------------------------------------------------
 3            ALGAL BIOASSAY           STATIC BIOASSAY                 N   N   REF. 8-PAGE 2
-------------------------------------------------------------------------

      PERFORMANCE AUDIT            AUDIT FREQUENCY       CONTROL LIMITS
      (FOR TOTAL METHOD)           (% OF ANALYSES)       SEE APP. #1 FOR CALCULATIONS
      ********************         *****************     *************************
      REAGENT BLANK                                                CELLS/ML
      DUPLICATE ANALYSES           100                   20        RELATIVE PERCENT DIFFERENCE
      SPIKED SAMPLES                                               % LOSS OR GAIN OF SPIKE
      LAB. CONTROL STANDARD                                        RELATIVE PERCENT ERROR
      REFERENCE STANDARDS                                          RELATIVE PERCENT ERROR

         PARTIAL METHOD AUDIT    AUDIT TYPE         AUDIT FREQUENCY    CONTROL LIMITS
         ********************    **********         ***************    **************
      1. LABORATORY CONTROL STD.                    100%               90% SURVIVAL
      2.
      3.
      4.
      5.

         INSTRUMENT AUDITS       AUDIT TYPE         AUDIT FREQUENCY    CONTROL LIMITS
         *****************       **********         ***************    **************
      1.
      2.
      3.
      4.
      5.

APPROXIMATE DETECTION LIMIT 6 CELLS/ML

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 6 CELLS/ML TO 1X10 CELLS/ML

      PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB                6 / 30 / 1977
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                     QUALITY ASSURANCE DATA FOR        ALGAL BIOASSAY
--------------------------------------------------------------------------------------------------------------
METHOD STORET  PARAMETER           SAMPLE    METHOD                                                *    #    METHOD REFERENCE
NUMBER NUMBER                      TYPE      DESCRIPTION
--------------------------------------------------------------------------------------------------------------
 6             ALGAL BIOASSAY                FLOW THROUGH ALGAL BIOASSAY                                     REF. 8-PAGE 2
--------------------------------------------------------------------------------------------------------------

         PERFORMANCE AUDIT                  AUDIT FREQUENCY               CONTROL LIMITS
         (FOR TOTAL METHOD)                 (% OF ANALYSES)               SEE APP. #1 FOR CALCULATIONS
         ********************               *****************             **************************
         REAGENT BLANK                                                                   CELLS/ML
         DUPLICATE ANALYSES                 100                           20             RELATIVE PERCENT DIFFERENCE
         SPIKED SAMPLES                                                                  % LOSS OR GAIN OF SPIKE
         LAB. CONTROL STANDARD                                                           RELATIVE PERCENT ERROR
         REFERENCE STANDARDS                                                             RELATIVE PERCENT ERROR

              PARTIAL METHOD AUDIT     AUDIT TYPE               AUDIT FREQUENCY          CONTROL LIMITS
              ********************     **********               ***************          **************
32<      1.   UPSTREAM CONTROL         PRECISION                100%                     20% DIFFERENCE IN % KILLS
         2.
         3.
         4.
         5.

              INSTRUMENT AUDITS        AUDIT TYPE               AUDIT FREQUENCY          CONTROL LIMITS
              *****************        **********               ***************          **************
         1.
         2.
         3.
         4.
         5.

APPROXIMATE DETECTION LIMIT 6 CELLS/ML

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 6 CELLS/ML TO 1X10 CELLS/ML

         PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
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QUALITY ASSURANCE. DATA FOR ATP

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
9		ATP	WATER	ATP-FLUORESCENCE-LUCIFERINASE	N	Y	REF. 8-PAGE 30

PERFORMANCE AUDIT (FOR TOTAL METHOD) ********************	AUDIT FREQUENCY (% OF ANALYSES) ****************	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS *************************	
REAGENT BLANK	5	1	NG/L
DUPLICATE ANALYSES	10	50	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	2	10	RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT ********************	AUDIT TYPE **********	AUDIT FREQUENCY ***************	CONTROL LIMITS **************
1.	LABORATORY CONTOL STD.	PRECISION	2 EACH RUN	10% RELATIVE % ERROR
2.				
3.				
4.				
5.				

	INSTRUMENT AUDITS *****************	AUDIT TYPE **********	AUDIT FREQUENCY ***************	CONTROL LIMITS **************
1.				
2.				
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT 1 NG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 5 NG/L TO 500 NG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB   6 / 30 / 1977

QUALITY ASSURANCE DATA FOR   CARBON-14

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	*	METHOD REFERENCE
12	70990	CARBON-14	WATER	C-14 LIQUID SCINT.	N	N	REF. 0-PAGE

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	*****************	**************************	
REAGENT BLANK	5	100	MGC/M3HR
DUPLICATE ANALYSES			RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	0.67	4	RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.	FILTER REAGENT BLANK		5%	100 CPM
2.	DUPLICATE COUNTS	INSTRUMENT	100%	20 RPD
3.	AMPULE	CONTROL STD.	5%	5 RPD
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.	CALIBRATION STD.		5%	5 RPD
2.				
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT 100 MGC/M3HR

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 100 MGC/M3HR TO 10000 MGC/M3HR

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977

QUALITY ASSURANCE DATA FOR CHLOROPHYLL

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
15	32217	CHLOROPHYLL	WATER	FLUORESCENE SPECTROSCOPY	N	N	REF. 0-PAGE 13

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
REAGENT BLANK	10	0.5	UG/L
DUPLICATE ANALYSES	10	50	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD			RELATIVE PERCENT ERROR
REFERENCE STANDARDS	SEMI-ANNUALLY		RELATIVE PERCENT ERROR

PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
1.			
2.			
3.			
4.			
5.			

INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
1.			
2.			
3.			
4.			
5.			

APPROXIMATE DETECTION LIMIT 0.5 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 5 UG/L TO 25 UG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

J. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
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QUALITY ASSURANCE DATA FOR CHLOROPHYLL

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
18	32230	CHLOROPHYLL	WATER	UV-TRICHROMATIC PROCEDURE	N	N	REF. 4-PAGE 14

PERFORMANCE AUDIT (FOR TOTAL METHOD) ********************	AUDIT FREQUENCY (% OF ANALYSES) ******************	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS **************************	
REAGENT BLANK	10	4	UG/L
DUPLICATE ANALYSES	10	50	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	1		RELATIVE PERCENT ERROR
REFERENCE STANDARDS	SEMI-ANNUALLY		RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT ********************	AUDIT TYPE **********	AUDIT FREQUENCY ***************	CONTROL LIMITS **************
1.				
2.				
3.				
4.				
5.				

	INSTRUMENT AUDITS *****************	AUDIT TYPE **********	AUDIT FREQUENCY ***************	CONTROL LIMITS **************
1.	WAVELENGTH AUDIT		SEMI-ANNUALLY	ADJUSTED TO STANDARD
2.				
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT 3.6 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 4 UG/L TO 40 UG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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J. S. EPA CENTRAL REGION 5 LAB                6 / 30 / 1977
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                   QUALITY ASSURANCE DATA FOR           FECAL COLIFORM

METHOD STORET PARAMETER          SAMPLE  METHOD        '                  *   #   METHOD REFERENCE
NUMBER NUMBER                    TYPE    DESCRIPTION

  21   31616  FECAL COLIFORM     WATER   MEMBRANE FILTER                  N   N   REF. 1-P937

        PERFORMANCE AUDIT                AUDIT FREQUENCY         CONTROL LIMITS
        (FOR TOTAL METHOD)               (% OF ANALYSES)         SEE APP. #1 FOR CALCULATIONS
        *********************            ****************        **************************
        REAGENT BLANK                    100                     #/100ML        #/100ML
        DUPLICATE ANALYSES               5                       50             RELATIVE PERCENT DIFFERENCE
        SPIKED SAMPLES                                                          % LOSS OR GAIN OF SPIKE
        LAB CONTROL STANDARD                                                    RELATIVE PERCENT ERROR
        REFERENCE STANDARDS                                                     RELATIVE PERCENT ERROR

           PARTIAL METHOD AUDIT     AUDIT TYPE          AUDIT FREQUENCY      CONTROL LIMITS
           ********************     **********          ***************      **************
        1.
        2.
        3.
        4.
        5.

           INSTRUMENT AUDITS        AUDIT TYPE          AUDIT FREQUENCY      CONTROL LIMITS
           *****************        **********          ***************      **************
        1.
        2.
        3.
        4.
        5.

APPROXIMATE DETECTION LIMIT 1 #/100ML

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 1 #/100ML TO 80000 #/100ML

      PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL  REGION 5 LAB              6 / 30 / 1977
                   QUALITY ASSURANCE DATA FOR            FISH BIOASSAY
-------------------------------------------------------------------------------------------
METHOD STORET  PARAMETER              SAMPLE  METHOD                                *   #   METHOD REFERENCE
NUMBER NUMBER                         TYPE    DESCRIPTION
-------------------------------------------------------------------------------------------
 24            FISH BIOASSAY                  FLOW THROUGH-96 HOURS                 Y   Y   REF.8-PAGE 2
-------------------------------------------------------------------------------------------

         PERFORMANCE AUDIT                    AUDIT FREQUENCY              CONTROL LIMITS
         (FOR TOTAL METHOD)                   (% OF ANALYSES)              SEE APP.#1 FOR CALCULATIONS
         ********************                 *****************            ****************************
         REAGENT BLANK                        100                          90% SURVIVAL   %
         DUPLICATE ANALYSES                   100%                         20             RELATIVE PERCENT DIFFERENCE
         SPIKED SAMPLES                                                                   % LOSS OR GAIN OF SPIKE
         LAB.CONTROL STANDARD                                                             RELATIVE PERCENT ERROR
         REFERENCE STANDARDS                                                              RELATIVE PERCENT ERROR

               PARTIAL METHOD AUDIT     AUDIT TYPE                AUDIT FREQUENCY         CONTROL LIMITS
               ********************     **********                ***************         **************
         1.    SUITABILITY TEST                                   ONCE EVERY 4 MONTHS
         2.
         3.
         4.
         5.

               INSTRUMENT AUDITS        AUDIT TYPE                AUDIT FREQUENCY         CONTROL LIMITS
               *****************        **********                ***************         **************
         1.
         2.
         3.
         4.
         5.
APPROXIMATE DETECTION LIMIT 0 %

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0 % TO 100 %

         PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977

QUALITY ASSURANCE DATA FOR FISH-BIOASSAY

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
27	61402	FISH-BIOASSAY		STATIC FISH BIOASSAY-96 HRS.	Y	Y	REF. 8-PAGE 2

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	*****************	***************************	
REAGENT BLANK		0.5	%
DUPLICATE ANALYSES	100	20	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD			RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.	SUITABILITY OF TEST ORGAN		4 MONTH INTERVAL	90% SURVIVAL
2.	UPSTREAM CONTROL		100%	90% SURVIVAL
3.				
4.				
5.				

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	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.				
2.				
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT 0 %

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0 % TO 100 %

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977

QUALITY ASSURANCE DATA FOR MACRO-BIOASSAY

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
30		MACRO-BIOASSAY		FLOW THROUGH MACROINVERTEBRATE-96 HR.	Y	Y	REF. 8-PAGE 2

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	*****************	**************************	
REAGENT BLANK	100	90% SURVIVAL	%
DUPLICATE ANALYSES	100	20	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD			RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

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	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.				
2.				
3.				
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.				
2.				
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT 0 %

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0 % TO 100 %

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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U. S. EPA CENTRAL REGION 5 LAB                6 / 30 / 1977
9
                        QUALITY ASSURANCE DATA FOR           MACRO-BIOASSAY

METHOD STORET  PARAMETER          SAMPLE   METHOD                                        *   *   METHOD REFERENCE
NUMBER NUMBER                     TYPE     DESCRIPTION

 33            MACRO-BIOASSAY     WATER    STATIC MACROINVERTEBRATE 24-96 HR.            Y   Y   REF. 8-PAGE 2

          PERFORMANCE AUDIT               AUDIT FREQUENCY          CONTROL LIMITS
          (FOR TOTAL METHOD)              (% OF ANALYSES)          SEE APP. #1 FOR CALCULATIONS
          ********************            *****************        *************************
          REAGENT BLANK                                                        X
          DUPLICATE ANALYSES              100                      20          RELATIVE PERCENT DIFFERENCE
          SPIKED SAMPLES                                                       % LOSS OR GAIN OF SPIKE
          LAB. CONTROL STANDARD                                                RELATIVE PERCENT ERROR
          REFERENCE STANDARDS                                                  RELATIVE PERCENT ERROR

             PARTIAL METHOD AUDIT      AUDIT TYPE             AUDIT FREQUENCY       CONTROL LIMITS
             ********************      **********             ***************       **************
          1. UPSTREAM CONTROL                                 EACH RUN              90% SURVIVAL
  41<     2.
          3.
          4.
          5.

             INSTRUMENT AUDITS         AUDIT TYPE             AUDIT FREQUENCY       CONTROL LIMITS
             *****************         **********             ***************       **************
          1.
          2.
          3.
          4.
          5.

APPROXIMATE DETECTION LIMIT 0 %

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0 % TO 100 %

          PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB              6 / 30 / 1977
              QUALITY ASSURANCE DATA FOR          PERIPHYTON
--------------------------------------------------------------------------------
METHOD STORET PARAMETER        SAMPLE  METHOD                        *  #  METHOD REFERENCE
NUMBER NUMBER                  TYPE    DESCRIPTION
--------------------------------------------------------------------------------
  36   60400  PERIPHYTON       OLAS/SLIDESEDGWICK-RAFTER             N  Y  REF. 4-PAGE 3
--------------------------------------------------------------------------------

          PERFORMANCE AUDIT           AUDIT FREQUENCY      CONTROL LIMITS
          (FOR TOTAL METHOD)          (% OF ANALYSES)      SEE APP. #1 FOR CALCULATIONS
          ********************        *****************    ****************************
          REAGENT BLANK                                               CELLS/UNIT
          DUPLICATE ANALYSES          10                   50         RELATIVE PERCENT DIFFERENCE
          SPIKED SAMPLES                                              % LOSS OR GAIN OF SPIKE
          LAB CONTROL STANDARD                                        RELATIVE PERCENT ERROR
          REFERENCE STANDARDS                                         RELATIVE PERCENT ERROR

             PARTIAL METHOD AUDIT   AUDIT TYPE       AUDIT FREQUENCY   CONTROL LIMITS
             ********************   **********       ***************   **************
       1.
       2.
       3.
       4.
       5.

             INSTRUMENT AUDITS      AUDIT TYPE       AUDIT FREQUENCY   CONTROL LIMITS
             *****************      **********       ***************   **************
       1.
       2.
       3.
       4.
       5.

APPROXIMATE DETECTION LIMIT 6 CELLS/UNIT

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 6 CELLS/UNIT TO 600 CELLS/UNIT

       PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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42<

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
9

QUALITY ASSURANCE DATA FOR PERIPHYTON

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
39	46400	PERIPHYTON	GLAS/SLIDE	INVERTED MICROSCOPE	N	Y	REF. 4-PAGE 8

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	*****************	**************	***********
REAGENT BLANK			CELLS/UNIT
DUPLICATE ANALYSES	10	50	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB CONTROL STANDARD			RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.				
2.				
3.				
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.	MICROSCOPE CALIBRATION		ANNUALLY	CHECK BY SECTION CHIEF
2.				
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT 20 CELLS/UNIT

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 20 CELLS/UNIT TO 200 CELLS/UNIT

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
9

QUALITY ASSURANCE DATA FOR PERIPHYTON

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	*	METHOD REFERENCE
42	60400	PERIPHYTON	GLAS/SLIDE	DIATOM ANALYSES	N	Y	REF. 4-PAGE 4

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
REAGENT BLANK			% OF TOTAL
DUPLICATE ANALYSES	10	50	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD			RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
1.				
2.				
3.				
4.				
5.				

44<

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
1.				
2.				
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT 1 % OF TOTAL

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 1 % OF TOTAL TO 100 % OF TOTAL

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
9

QUALITY ASSURANCE DATA FOR PHYTOPLANKTON

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
45	60050	PHYTOPLANKTON	WATER	SEDGWICK-RAFTER	N	Y	REF. 4-PAGE 8

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	*****************	**************************	
REAGENT BLANK			#/ML
DUPLICATE ANALYSES	10	50	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD			RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.				
2.				
3.				
4.				
5.				

45<

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.				
2.				
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT 6 #/ML

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 6 #/ML TO 10000 #/ML

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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J. S. EPA CENTRAL REGION 5 LAB                6 / 30 / 1977
9
                      QUALITY ASSURANCE DATA FOR          PHYTOPLANKTON

METHOD STORET PARAMETER          SAMPLE  METHOD                              *   #   METHOD REFERENCE
NUMBER NUMBER                    TYPE    DESCRIPTION

 48    60050  PHYTOPLANKTON      WATER   INVERTED MICROSCOPE                 N   Y   REF. 4-PAGE 10

        PERFORMANCE AUDIT                AUDIT FREQUENCY      CONTROL LIMITS
        (FOR TOTAL METHOD)               (% OF ANALYSES)      SEE APP. #1 FOR CALCULATIONS
        ********************             *****************    **************************
        REAGENT BLANK                                                  #/ML
        DUPLICATE ANALYSES               10                   50       RELATIVE PERCENT DIFFERENCE
        SPIKED SAMPLES                                                 % LOSS OR GAIN OF SPIKE
        LAB CONTROL STANDARD                                           RELATIVE PERCENT ERROR
        REFERENCE STANDARDS                                            RELATIVE PERCENT ERROR

           PARTIAL METHOD AUDIT     AUDIT TYPE        AUDIT FREQUENCY      CONTROL LIMITS
           ********************     **********        ***************      **************
        1.
  46<   2.
        3.
        4.
        5.

           INSTRUMENT AUDITS        AUDIT TYPE        AUDIT FREQUENCY      CONTROL LIMITS
           *****************        **********        ***************      **************
        1.
        2.
        3.
        4.
        5.

APPROXIMATE DETECTION LIMIT 20 #/ML

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 20 #/ML TO 10000 #/ML

        PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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J. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977

QUALITY ASSURANCE DATA FOR PHYTOPLANKTON

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
51	60400	PHYTOPLANKTON	WATER	DIATOM ANALYSIS	N	Y	REF. 4-PAGE 11

PERFORMANCE AUDIT (FOR TOTAL METHOD) ********************	AUDIT FREQUENCY (% OF ANALYSES) ****************	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS **************************	
REAGENT BLANK			% OF TOTAL
DUPLICATE ANALYSES	10	50	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD			RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT ********************	AUDIT TYPE **********	AUDIT FREQUENCY ***************	CONTROL LIMITS *************
1.				
2.				
3.				
4.				
5.				

47<

	INSTRUMENT AUDITS *****************	AUDIT TYPE **********	AUDIT FREQUENCY ***************	CONTROL LIMITS *************
1.				
2.				
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT 1 % OF TOTAL

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 1 % OF TOTAL TO 100 % OF TOTAL

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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U. S. EPA CENTRAL REGION 5 LAB              6 / 30 / 1977
                QUALITY ASSURANCE DATA FOR                       SED. BIOASSAY
--------------------------------------------------------------------------------------
METHOD STORET  PARAMETER        SAMPLE    METHOD                                         *    *   METHOD REFERENCE
NUMBER NUMBER                   TYPE      DESCRIPTION
--------------------------------------------------------------------------------------
 54            SED. BIOASSAY    SEDIMENT  96 HR. EXPOSURE OF 4 SPECIES TO SED. VIA WATER  N    N   REF. 8-PAGE 8
--------------------------------------------------------------------------------------

        PERFORMANCE AUDIT              AUDIT FREQUENCY          CONTROL LIMITS
        (FOR TOTAL METHOD)             (% OF ANALYSES)          SEE APP. #1 FOR CALCULATIONS
        ********************           *****************        *************************
                                                                        %
        REAGENT BLANK                                                   RELATIVE PERCENT DIFFERENCE
        DUPLICATE ANALYSES              100                     50      % LOSS OR GAIN OF SPIKE
        SPIKED SAMPLES                                                  RELATIVE PERCENT ERROR
        LAB. CONTROL STANDARD                                           RELATIVE PERCENT ERROR
        REFERENCE STANDARDS

           PARTIAL METHOD AUDIT        AUDIT TYPE          AUDIT FREQUENCY      CONTROL LIMITS
           ********************        **********          ***************      **************
      1.
      2.
      3.
      4.
      5.

           INSTRUMENT AUDITS           AUDIT TYPE          AUDIT FREQUENCY      CONTROL LIMITS
           *****************           **********          ***************      **************
      1.
      2.
      3.
      4.
      5.

APPROXIMATE DETECTION LIMIT 0 %

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0 % TO 100 %

       PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
9

QUALITY ASSURANCE DATA FOR ZOOPLANKTON

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
57	60990	ZOOPLANKTON	WATER	COUNTING CHAMBER	N	Y	REF. 4-PAGE 13

PERFORMANCE AUDIT (FOR TOTAL METHOD) ********************	AUDIT FREQUENCY (% OF ANALYSES) *****************	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS **************************	
REAGENT BLANK			#/M3
DUPLICATE ANALYSES	10	50	RELATIVE PERCENT DIFFERENCE
SPI[illegible] SAMPLES			% LOSS OR GAIN OF SPIKE
[illegible]TROL STANDARD			RELATIVE PERCENT ERROR
[illegible]E STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT ********************	AUDIT TYPE **********	AUDIT FREQUENCY ***************	CONTROL LIMITS **************
1.				
2.				
3.				
4.				
5.				

49<

	INSTRUMENT AUDITS *****************	AUDIT TYPE **********	AUDIT FREQUENCY ***************	CONTROL LIMITS **************
1.				
2.				
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT 1 #/M3

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 1 #/M3 TO 1000 #/M3

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
9

QUALITY ASSURANCE DATA FOR ZOOPLANKTON

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
60		ZOOPLANKTON	WATER	DRY AND ASH FREEWEIGHT	N	Y	REF. 4-PAGE 13

PERFORMANCE AUDIT (FOR TOTAL METHOD) ********************	AUDIT FREQUENCY (% OF ANALYSES) *****************	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS ********************************	
REAGENT BLANK	5	MG/M3	MG/M3
DUPLICATE ANALYSES	10		RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD			RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

50<

	PARTIAL METHOD AUDIT ********************	AUDIT TYPE **********	AUDIT FREQUENCY ***************	CONTROL LIMITS **************
1.				
2.				
3.				
4.				
5.				

	INSTRUMENT AUDITS *****************	AUDIT TYPE **********	AUDIT FREQUENCY ***************	CONTROL LIMITS **************
1.	BALANCE	STD. WEIGHTS	SEMI-ANNUALLY	0.5 MG
2.				
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT 0.02 MG/M3

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0.02 MG/M3 TO - MG/M3

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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J. S. EPA  CENTRAL  REGION  5  LAB                  6 / 30 / 1977
9
                QUALITY  ASSURANCE  DATA  FOR              ALDRIN

METHOD STORET  PARAMETER             SAMPLE   METHOD                                          *    #    METHOD REFERENCE
NUMBER NUMBER                        TYPE     DESCRIPTION

 63            ALDRIN                FISH     DUAL COL.-ELECTRON CAPTURE-GC                   Y    N    CRL PROC

           PERFORMANCE AUDIT                  AUDIT FREQUENCY            CONTROL LIMITS
           (FOR TOTAL METHOD)                 (% OF ANALYSES)            SEE APP.#1 FOR CALCULATIONS
           **********************             ****************           ****************************
           REAGENT BLANK                      5                          1                 MG/KG
           DUPLICATE ANALYSES                 5                          50%               RELATIVE PERCENT DIFFERENCE
           SPIKED SAMPLES                                                                  % LOSS OR GAIN OF SPIKE
           LAB CONTROL STANDARD               10%                        50%               RELATIVE PERCENT ERROR
           REFERENCE STANDARDS                                                             RELATIVE PERCENT ERROR

               PARTIAL METHOD AUDIT     AUDIT TYPE               AUDIT FREQUENCY   CONTROL LIMITS
               ********************     **********               ***************   **************
           1.  EXTRACTION EFFICIENCY                             2%                80-110%
           2.  FLORISIL EFFICIENCY      ALDRIN                   2%                80-110%
           3.  SILICIC ACID EFF.        LINEARITY                2%                80-110%
           4.
           5.

               INSTRUMENT AUDITS        AUDIT TYPE               AUDIT FREQUENCY   CONTROL LIMITS
               *****************        **********               ***************   **************
           1.  RETENTION TIME                                    EACH RUN          4% FROM AVERAGE
           2.  DETECTOR SENSITIVITY     ALDRIN                   EACH RUN          20% AT 200PG-DETECTOR
           3.  DETECTOR RESP. TO ALDRIN LINEARITY                MONTHLY           10-500 PG
           4.
           5.

APPROXIMATE DETECTION LIMIT 1 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 1 MG/KG TO 50 MG/KG

           PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
9
QUALITY ASSURANCE DATA FOR BETA-BHC

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	* Y	* N	METHOD REFERENCE COL PROC.
66		BETA-BHC	FISH	DUAL COL. -ELECTRON CAPTURE-GC			

PERFORMANCE AUDIT (FOR TOTAL METHOD) **********************	AUDIT FREQUENCY (% OF ANALYSES) ******************	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS ***************************	
REAGENT BLANK	5	1	MG/KG
DUPLICATE ANALYSES	5	30%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB CONTROL STANDARD	10%	50%	RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

52^

	PARTIAL METHOD AUDIT **********************	AUDIT TYPE **********	AUDIT FREQUENCY ****************	CONTROL LIMITS ***************
1.	EXTRACTION EFFICIENCY		2%	80-110%
2.	FLORISIL EFFICIENCY	ALDRIN	2%	80-110%
3.	SILICIC ACID EFF.	LINEARITY	2%	80-110%
4.				
5.				

	INSTRUMENT AUDITS ******************	AUDIT TYPE **********	AUDIT FREQUENCY ****************	CONTROL LIMITS ***************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	20% AT 200PG-DETECTOR
3.	DETECTOR RESP. TO ALDRIN	LINEARITY	MONTHLY	10-500 PG
4.				
5.				

APPROXIMATE DETECTION LIMIT 1 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 1 MG/KG TO 50 MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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U. S. EPA CENTRAL REGION 5 LAB                 6 / 30 / 1977
9
                   QUALITY ASSURANCE DATA FOR            CHLOROBENZILATE

METHOD STORET  PARAMETER         SAMPLE   METHOD                                   *    #   METHOD REFERENCE
NUMBER NUMBER                    TYPE     DESCRIPTION

69             CHLOROBENZILATE   FISH     DUAL COL.-ELECTRON CAPTURE-GC            Y    N   CRL PROC.

      PERFORMANCE AUDIT             AUDIT FREQUENCY        CONTROL LIMITS
      (FOR TOTAL METHOD)            (% OF ANALYSES)        SEE APP.#1 FOR CALCULATIONS
      ******************            ****************       ****************************
      REAGENT BLANK                 5                      10         MG/KG
      DUPLICATE ANALYSES            5                      50%        RELATIVE PERCENT DIFFERENCE
      SPIKED SAMPLES                                                  % LOSS OR GAIN OF SPIKE
      LAB. CONTROL STANDARD         10%                    50%        RELATIVE PERCENT ERROR
      REFERENCE STANDARDS                                             RELATIVE PERCENT ERROR

         PARTIAL METHOD AUDIT    AUDIT TYPE         AUDIT FREQUENCY     CONTROL LIMITS
         ********************    **********         ***************     **************
    1.   EXTRACTION EFFICIENCY                      2%                  80-100%
    2.   FLORISIL EFFICIENCY     ALDRIN             2%                  80-110%
    3.   SILICIC ACID EFF.       LINEARITY          2%                  80-110%
    4.
    5.

         INSTRUMENT AUDITS       AUDIT TYPE         AUDIT FREQUENCY     CONTROL LIMITS
         *****************       **********         ***************     **************
    1.   RETENTION TIME                             EACH RUN            4% FROM AVERAGE
    2.   DETECTOR SENSITIVITY    ALDRIN             EACH RUN            20% AT 200 PG-DETECTOR
    3.   DETECTOR RESP. TO ALDRIN LINEARITY         MONTHLY             10-500 PG
    4.
    5.

APPROXIMATE DETECTION LIMIT 10 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 10 MG/KG TO 1000 MG/KG

    PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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53<

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U. S. EPA CENTRAL REGION 5 LAB                    6 / 30 / 1977
9
                   QUALITY ASSURANCE DATA FOR              O P'-DDD

METHOD STORET  PARAMETER           SAMPLE   METHOD                                  *    #    METHOD REFERENCE
NUMBER NUMBER                      TYPE     DESCRIPTION

 72            O P'-DDD            FISH     DUAL COL.-ELECTRON CAPTURE-GC           Y    N    CRL PROC.

         PERFORMANCE AUDIT                  AUDIT FREQUENCY           CONTROL LIMITS
         (FOR TOTAL METHOD)                 (% OF ANALYSES)           SEE APP. 01 FOR CALCULATIONS
         ********************               ****************          *************************
         REAGENT BLANK                      5                         2              MG/KG
         DUPLICATE ANALYSES                 5                         50%            RELATIVE PERCENT DIFFERENCE
         SPIKED SAMPLES                                                              % LOSS OR GAIN OF SPIKE
         LAB. CONTROL STANDARD              10%                       50%            RELATIVE PERCENT ERROR
         REFERENCE STANDARDS                                                         RELATIVE PERCENT ERROR

            PARTIAL METHOD AUDIT    AUDIT TYPE             AUDIT FREQUENCY    CONTROL LIMITS
            ********************    **********             ***************    **************
         1.  EXTRACTION EFFICIENCY                         2%                 80-110%
         2.  FLORISIL EFFICIENCY    ALDRIN                 2%                 80-110%
         3.  SILICIC ACID EFF.      LINEARITY              2%                 80-110%
         4.
         5.

            INSTRUMENT AUDITS       AUDIT TYPE             AUDIT FREQUENCY    CONTROL LIMITS
            *****************       **********             ***************    **************
         1.  RETENTION TIME                                EACH RUN           4% FROM AVERAGE
         2.  DETECTOR SENSITIVITY   ALDRIN                 EACH RUN           20% AT 200PG-DETECTOR
         3.  DETECTOR RESP. TO ALDRIN LINEARITY            MONTHLY            10-500 PG
         4.
         5.

APPROXIMATE DETECTION LIMIT 2 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 2 MG/KG TO 200 MG/KG

      PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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J. S. EPA CENTRAL  REGION 5 LAB                6 / 30 / 1977
9
                  QUALITY ASSURANCE DATA FOR              P P'-DDD
-------------------------------------------------------------------------
METHOD STORET PARAMETER         SAMPLE  METHOD                      *  #  METHOD REFERENCE
NUMBER NUMBER                   TYPE    DESCRIPTION
-------------------------------------------------------------------------
 75            P P'-DDD         FISH    DUAL COL.-ELECTRON CAPTURE-OC    Y  N  CRL PROC.
-------------------------------------------------------------------------

      PERFORMANCE AUDIT               AUDIT FREQUENCY          CONTROL LIMITS
      (FOR TOTAL METHOD)              (% OF ANALYSES)          SEE APP.#1 FOR CALCULATIONS
      *******************             ****************         ****************************
      REAGENT BLANK                   5                        2          MG/KG
      DUPLICATE ANALYSES              5                        50%        RELATIVE PERCENT DIFFERENCE
      SPIKED SAMPLES                                                      % LOSS OR GAIN OF SPIKE
      LAB.CONTROL STANDARD            10%                      50%        RELATIVE PERCENT ERROR
      REFERENCE STANDARDS                                                 RELATIVE PERCENT ERROR

         PARTIAL METHOD AUDIT    AUDIT TYPE        AUDIT FREQUENCY       CONTROL LIMITS
         ********************    **********        ***************       **************
55< 1.   EXTRACTION EFFICIENCY                     2%                    80-110%
    2.   FLORISIL EFFICIENCY     ALDRIN            2%                    80-110%
    3.   SILICIC ACID EFF.       LINEARITY         2%                    80-110%
    4.
    5.

         INSTRUMENT AUDITS       AUDIT TYPE        AUDIT FREQUENCY       CONTROL LIMITS
         *****************       **********        ***************       **************
    1.   RETENTION TIME                            EACH RUN              4% FROM AVERAGE
    2.   DETECTOR SENSITIVITY    ALDRIN            EACH RUN              20% AT 200PG-DETECTOR
    3.   DETECTOR RESP. TO ALDRIN LINEARITY        MONTHLY               10-500 PG
    4.
    5.

APPROXIMATE DETECTION LIMIT 2 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 2 MG/KG TO 200 MG/KG

     PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB               6 / 30 / 1977
              QUALITY ASSURANCE DATA FOR            O P'-DDE

METHOD STORET  PARAMETER      SAMPLE   METHOD                                 *    #    METHOD REFERENCE
NUMBER NUMBER                 TYPE     DESCRIPTION

 78            O P'-DDE       FISH     DUAL COL.-ELECTRON CAPTURE-GC          Y    N    CRL PROC.

     PERFORMANCE AUDIT                 AUDIT FREQUENCY           CONTROL LIMITS
     (FOR TOTAL METHOD)                (% OF ANALYSES)           SEE APP.#1 FOR CALCULATIONS
     ******************                ****************          ************************
     REAGENT BLANK                     5                         2          MG/KG
     DUPLICATE ANALYSES                5                         50%        RELATIVE PERCENT DIFFERENCE
     SPIKED SAMPLES                                                         % LOSS OR GAIN OF SPIKE
     LAB.CONTROL STANDARD              10%                       50%        RELATIVE PERCENT ERROR
     REFERENCE STANDARDS                                                    RELATIVE PERCENT ERROR

        PARTIAL METHOD AUDIT      AUDIT TYPE         AUDIT FREQUENCY      CONTROL LIMITS
        ******************        **********         **************       ************
     1. EXTRACTION EFFICIENCY                        2%                   80-110%
     2. FLORISIL EFFICIENCY       ALDRIN             2%                   80-110%
     3. SILICIC ACID EFF.         LINEARITY          2%                   80-110%
     4.
     5.

        INSTRUMENT AUDITS         AUDIT TYPE         AUDIT FREQUENCY      CONTROL LIMITS
        ****************          **********         **************       ************
     1. RETENTION TIME                               EACH RUN             4% FROM AVERAGE
     2. DETECTOR SENSITIVITY      ALDRIN             EACH RUN             20% AT 200PG-DETECTOR
     3. DETECTOR RESP. TO ALDRIN  LINEARITY          MONTHLY              10-500 PG
     4.
     5.

APPROXIMATE DETECTION LIMIT 2 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 2 MG/KG TO 200 MG/KG

     PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB              6 / 30 / 1977
                     QUALITY ASSURANCE DATA FOR          P P'-DDE

METHOD STORET  PARAMETER          SAMPLE   METHOD                                    *   #   METHOD REFERENCE
NUMBER NUMBER                     TYPE     DESCRIPTION

 01            P P'-DDE           FISH     DUAL COL. -ELECTRON CAPTURE-GC            Y   N   CRL PROC.

        PERFORMANCE AUDIT                 AUDIT FREQUENCY          CONTROL LIMITS
        (FOR TOTAL METHOD)                (% OF ANALYSES)          SEE APP. #1 FOR CALCULATIONS
        *********************             ****************         **************************
        REAGENT BLANK                     5                        2          MG/KG
        DUPLICATE ANALYSES                5                        50%        RELATIVE PERCENT DIFFERENCE
        SPIKED SAMPLES                                                        % LOSS OR GAIN OF SPIKE
        LAB. CONTROL STANDARD             10%                      50%        RELATIVE PERCENT ERROR
        REFERENCE STANDARDS                                                   RELATIVE PERCENT ERROR

           PARTIAL METHOD AUDIT       AUDIT TYPE           AUDIT FREQUENCY     CONTROL LIMITS
           ********************       **********           ***************     **************
        1. EXTRACTION EFFICIENCY                           2%                  80-110%
        2. FLORISIL EFFICIENCY        ALDRIN               2%                  80-110%
        3. SILICIC ACID EFF.          LINEARITY            2%                  80-110%
        4.
        5.

           INSTRUMENT AUDITS          AUDIT TYPE           AUDIT FREQUENCY     CONTROL LIMITS
           *****************          **********           ***************     **************
        1. RETENTION TIME                                  EACH RUN            4% FROM AVERAGE
        2. DETECTOR SENSITIVITY       ALDRIN               EACH RUN            20% AT 200PG-DETECTOR
        3. DETECTOR RESP. TO ALDRIN   LINEARITY            MONTHLY             10-500 PG
        4.
        5.

APPROXIMATE DETECTION LIMIT 2 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 2 MG/KG TO 200 MG/KG

        PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U.S EPA CENTRAL REGION 5 LAB          .       6 / 30 / 1977
 9
                    QUALITY ASSURANCE DATA FOR              O P'-DDT
--------------------------------------------------------------------------------
                                                                 *    *   METHOD REFERENCE
METHOD STORET  PARAMETER         SAMPLE   METHOD
NUMBER NUMBER                    TYPE     DESCRIPTION
--------------------------------------------------------------------------------
 64            O P'-DDT          FISH     DUAL COL.-ELECTRON CAPTURE-GC   Y    N   CRL PROC.
--------------------------------------------------------------------------------

        PERFORMANCE AUDIT              AUDIT FREQUENCY       CONTROL LIMITS
        (FOR TOTAL METHOD)             (% OF ANALYSES)       SEE APP. #1 FOR CALCULATIONS
        ********************           ****************      **************************
        REAGENT BLANK                  5                     3          MG/KG
        DUPLICATE ANALYSES             5                     50%        RELATIVE PERCENT DIFFERENCE
        SPIKED SAMPLES                                                  % LOSS OR GAIN OF SPIKE
        LAB. CONTROL STANDARD          10%                   50%        RELATIVE PERCENT ERROR
        REFERENCE STANDARDS                                             RELATIVE PERCENT ERROR

           PARTIAL METHOD AUDIT      AUDIT TYPE          AUDIT FREQUENCY     CONTROL LIMITS
           ********************      **********          ****************    **************
      1.   EXTRACTION EFFICIENCY                         2%                  80-110%
      2.   FLORISIL EFFICIENCY       ALDRIN              2%                  80-110%
      3.   SILICIC ACID EFF.         LINEARITY           2%                  80-110%
      4.
      5.

           INSTRUMENT AUDITS         AUDIT TYPE          AUDIT FREQUENCY     CONTROL LIMITS
           *****************         **********          ****************    **************
      1.   RETENTION TIME                                EACH RUN            4% FROM AVERAGE
      2.   DETECTOR SENSITIVITY      ALDRIN              EACH RUN            20% AT 200 PG-DETECTOR
      3.   DETECTOR RESP. TO ALDRIN  LINEARITY           MONTHLY             10-500 PG
      4.
      5.

APPROXIMATE DETECTION LIMIT 3 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 3 MG/KG TO 300 MG/KG

     PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977

QUALITY ASSURANCE DATA FOR P P'-DDT

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
87		P P'-DDT	FISH	DUAL COL. -ELECTRON CAPTURE-GC	Y	N	CRL PROC.

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	*****************	**************************	
REAGENT BLANK	5	3	MG/KG
DUPLICATE ANALYSES	5	50%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	10%	50%	RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*******************	**********	***************	*************
1.	EXTRACTION EFFICIENCY		2%	80-110%
2.	FLORISIL EFFICIENCY	ALDRIN	2%	80-110%
3.	SILICIC ACID EFF.	LINEARITY	2%	80-110%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	*************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	20% AT 200PG-DETECTOR
3.	DETECTOR RESP. TO ALDRIN	LINEARITY	MONTHLY	10-500 PG
4.				
5.				

APPROXIMATE DETECTION LIMIT 3 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 3 MG/KG TO 300 MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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U. S. EPA CENTRAL REGION 5 LAB                 6 / 30 / 1977
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                    QUALITY ASSURANCE DATA FOR          DIELDRIN
_____________________________________________________________________________
METHOD STORET  PARAMETER        SAMPLE  METHOD                              *  #   METHOD REFERENCE
NUMBER NUMBER                   TYPE    DESCRIPTION
_____________________________________________________________________________
 90            DIELDRIN         FISH    DUAL COL.-ELECTRON CAPTURE-GC       Y  N   CRL PROC.
_____________________________________________________________________________

          PERFORMANCE AUDIT               AUDIT FREQUENCY         CONTROL LIMITS
          (FOR TOTAL METHOD)              (% OF ANALYSES)         SEE APP. #1 FOR CALCULATIONS
          ********************            ******************      ****************************
          REAGENT BLANK                   5                       2          MG/KG
          DUPLICATE ANALYSES              5                       50%        RELATIVE PERCENT DIFFERENCE
          SPIKED SAMPLES                                                     % LOSS OR GAIN OF SPIKE
          LAB CONTROL STANDARD            10%                     50%        RELATIVE PERCENT ERROR
          REFERENCE STANDARDS                                                RELATIVE PERCENT ERROR

             PARTIAL METHOD AUDIT     AUDIT TYPE          AUDIT FREQUENCY    CONTROL LIMITS
             ********************     **********          ***************    **************
          1. EXTRACTION EFFICIENCY                        2%                 80-110%
          2. FLORISIL EFFICIENCY      ALDRIN              2%                 80-110%
          3. SILICIC ACID EFF.        LINEARITY           2%                 80-110%
          4.
          5.

             INSTRUMENT AUDITS        AUDIT TYPE          AUDIT FREQUENCY    CONTROL LIMITS
             *****************        **********          ***************    **************
          1. RETENTION TIME                               EACH RUN           4% FROM AVERAGE
          2. DETECTOR SENSITIVITY     ALDRIN              EACH RUN           20% AT 200PG-DETECTOR
          3. DETECTOR RESP. TO ALDRIN LINEARITY           MONTHLY            10-500 PG
          4.
          5.

APPROXIMATE DETECTION LIMIT 2 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 2 MG/KG TO 200 MG/KG

          PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB            6 / 30 / 1977
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              QUALITY ASSURANCE DATA FOR         DIBUTYLPHTHALAT
-----------------------------------------------------------------------------------------
METHOD STORET  PARAMETER         SAMPLE   METHOD                                  *   *   METHOD REFERENCE
NUMBER NUMBER                    TYPE     DESCRIPTION
-----------------------------------------------------------------------------------------
 93            DIBUTYLPHTHALAT   FISH     DUAL COL.-ELECTRON CAPTURE-GC           Y   N   CRL PROC.
-----------------------------------------------------------------------------------------

         PERFORMANCE AUDIT              AUDIT FREQUENCY          CONTROL LIMITS
         (FOR TOTAL METHOD)             (% OF ANALYSES)          SEE APP. #1 FOR CALCULATIONS
         ********************           *****************        *************************
         REAGENT BLANK                  5                        10        MG/KG
         DUPLICATE ANALYSES             5                        50%       RELATIVE PERCENT DIFFERENCE
         SPIKED SAMPLES                                                    % LOSS OR GAIN OF SPIKE
         LAB. CONTROL STANDARD          10%                      50%       RELATIVE PERCENT ERROR
         REFERENCE STANDARDS                                               RELATIVE PERCENT ERROR

            PARTIAL METHOD AUDIT     AUDIT TYPE           AUDIT FREQUENCY     CONTROL LIMITS
            ********************     **********           ***************     **************
         1.  EXTRACTION EFFICIENCY                        2%                  90-110%
         2.  FLORISIL EFFICIENCY     ALDRIN               2%                  80-110%
         3.  SILICIC ACID EFF.       LINEARITY            2%                  80-110%
         4.
         5.

            INSTRUMENT AUDITS        AUDIT TYPE           AUDIT FREQUENCY     CONTROL LIMITS
            *****************        **********           ***************     **************
         1.  RETENTION TIME                               EACH RUN            4% FROM AVERAGE
         2.  DETECTOR SENSITIVITY    ALDRIN               EACH RUN            20% AT 200PG-DETECTOR
         3.  DETECTOR RESP. TO ALDRIN LINEARITY           MONTHLY             10-300 PG
         4.
         5.

APPROXIMATE DETECTION LIMIT 10 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 10 MG/KG TO 1000 MG/KG

         PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
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QUALITY ASSURANCE DATA FOR DPCA

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
96		DPCA	FISH	DUAL COL. -ELECTRON CAPTURE-GC	Y	N	CRL PROC.

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	*****************	**************************	
REAGENT BLANK	5	2	MG/KG
DUPLICATE ANALYSES	5	50%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	10%	50%	RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

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	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.	EXTRACTION EFFICIENCY		2%	80-110%
2.	FLORISIL EFFICIENCY	ALDRIN	2%	80-110%
3.	SILICIC ACID EFF.	LINEARITY	2%	80-110%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	20% AT 200PG-DETECTOR
3.	DETECTOR RESP. TO ALDIN	LINEARITY	MONTHLY	10-500 PG
4.				
5.				

APPROXIMATE DETECTION LIMIT 2 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 2 MG/KG TO 200 MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977

QUALITY ASSURANCE DATA FOR ENDOSULFAN I

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	* Y	* N	METHOD REFERENCE CRL PROC.
99		ENDOSULFAN I	FISH	DUAL COL. -ELECTRON CAPTURE-GC			

PERFORMANCE AUDIT (FOR TOTAL METHOD) ********************	AUDIT FREQUENCY (% OF ANALYSES) ******************	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS **************************	
REAGENT BLANK	5	2	MG/KG
DUPLICATE ANALYSES	5	50%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	10%	50%	RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT ********************	AUDIT TYPE **********	AUDIT FREQUENCY ***************	CONTROL LIMITS **************
1.	EXTRACTION EFFICIENCY		2%	80-110%
2.	FLORISIL EFFICIENCY	ALDRIN	2%	80-110%
3.	SILICIC ACID EFF.	LINEARITY	2%	80-110%
4.				
5.				

	INSTRUMENT AUDITS *****************	AUDIT TYPE **********	AUDIT FREQUENCY ***************	CONTROL LIMITS **************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	20% AT 200PG-DETECTOR
3.	DETECTOR RESP. TO ALDRIN	LINEARITY	MONTHLY	10-500 PG
4.				
5.				

APPROXIMATE DETECTION LIMIT 2 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 2 MG/KG TO 200 MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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U. S. EPA CENTRAL REGION 5 LAB                    6 / 30 / 1977
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                        QUALITY ASSURANCE DATA FOR              ENDOSULFAN II
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METHOD STORET  PARAMETER          SAMPLE   METHOD                          #   #   METHOD REFERENCE
NUMBER NUMBER                     TYPE     DESCRIPTION
----------------------------------------------------------------------------------------
 102           ENDOSULFAN II      FISH     DUALCOL -ELECTRON CAPTURE-OC    Y   N   CAL  PROC.
----------------------------------------------------------------------------------------

        PERFORMANCE AUDIT                 AUDIT FREQUENCY           CONTROL LIMITS
        (FOR TOTAL METHOD)                (% OF ANALYSES)           SEE APP. #1 FOR CALCULATIONS
        ********************              *****************         ***************************
        REAGENT BLANK                     5                         2            MG/KG
        DUPLICATE ANALYSES                5                         50%          RELATIVE PERCENT DIFFERENCE
        SPIKED SAMPLES                                                           % LOSS OR GAIN OF SPIKE
        LAB. CONTROL STANDARD             10%                       50%          RELATIVE PERCENT ERROR
        REFERENCE STANDARDS                                                      RELATIVE PERCENT ERROR

           PARTIAL METHOD AUDIT       AUDIT TYPE           AUDIT FREQUENCY      CONTROL LIMITS
           ********************       **********           ***************      **************
        1.  EXTRACTION EFFICIENCY                          2%                   80-110%
        2.  FLORISIL EFFICIENCY       ALDRIN               2%                   80-110%
        3.  SILICIC ACID EFF.         LINEARITY            2%                   80-110%
        4.
        5.

           INSTRUMENT AUDITS          AUDIT TYPE           AUDIT FREQUENCY      CONTROL LIMITS
           *****************          **********           ***************      **************
        1.  RETENTION TIM                                  EACH RUN             4% FROM AVERAGE
        2.  DETECTOR SENSITIVITY      ALDRIN               EACH RUN             20% AT 200PG-DETECTOR
        3.  DETECTOR RESP. TO ALDRIN  LINEARITY            MONTHLY              10-500 PG
        4.
        5.

APPROXIMATE DETECTION LIMIT 2 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 2 MG/KG TO 200 MG/KG

        PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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QUALITY ASSURANCE DATA FOR ENDRIN

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	$	METHOD REFERENCE
105		ENDRIN	FISH	DUAL COL. -ELECTRON CAPTURE-GC	Y	N	CRL PROC.

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. 01 FOR CALCULATIONS	
********************	******************	*****************************	
REAGENT BLANK	5	3	MG/KG
DUPLICATE ANALYSES	5	50%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	10%	50%	RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*********************	**********	***************	*************
1.	EXTRACTION EFFICIENCY		2%	80-110%
2.	FLORISIL EFFICIENCY	ALDRIN	2%	80-110%
3.	SILICIC ACID EFF.	LINEARITY	2%	80-110%
4.				
5.				

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	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	*************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	20% AT 200PG-DETECTOR
3.	DETECTOR RESP. TO ALDRIN	LINEARITY	MONTHLY	10-500 PG
4.				
5.				

APPROXIMATE DETECTION LIMIT 3 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 3 MG/KG TO 300 MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977

QUALITY ASSURANCE DATA FOR ETHYLHEXYL PHTH

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
108		ETHYLHEXYL PHTH	FISH	DUAL COL. -ELECTRON CAPTURE-GC	Y	N	CRL PROC.

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	*****************	*************************	
REAGENT BLANK	5	10	MG/KG
DUPLICATE ANALYSES	5	50%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	10%	50%	RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.	EXTRACTION EFFICIENCY		2%	80-110%
2.	FLORISIL EFFICIENCY	ALDRIN	2%	80-110%
3.	SILICIC ACID EFF.	LINEARITY	2%	80-110%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	20% AT 200PG-DETECTOR
3.	DETECTOR RESP. TO ALDRIN	LINEARITY	MONTHLY	10-500 PG
4.				
5.				

APPROXIMATE DETECTION LIMIT 10 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 10 MG/KG TO 1000 MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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U. S. EPA CENTRAL REGION 5 LAB                6 / 30 / 1977
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                    QUALITY ASSURANCE DATA FOR        GAMMA CHLORDANE

METHOD STORET  PARAMETER          SAMPLE   METHOD                                        *   *   METHOD REFERENCE
NUMBER NUMBER                     TYPE     DESCRIPTION

 111           GAMMA CHLORDANE    FISH     DUAL COL.-ELECTRON CAPTURE-GC                 Y   N   CRL PROC.

         PERFORMANCE AUDIT                      AUDIT FREQUENCY          CONTROL LIMITS
         (FOR TOTAL METHOD)                     (% OF ANALYSES)          SEE APP. #1 FOR CALCULATIONS
         ********************                   *****************        ****************************
         REAGENT BLANK                          5                        2          MG/KG
         DUPLICATE ANALYSES                     5                                   RELATIVE PERCENT DIFFERENCE
         SPIKED SAMPLES                                                             % LOSS OR GAIN OF SPIKE
         LAB. CONTROL STANDARD                  10%                      50%        RELATIVE PERCENT ERROR
         REFERENCE STANDARDS                                                        RELATIVE PERCENT ERROR

              AL METHOD AUDIT       AUDIT TYPE          AUDIT FREQUENCY      CONTROL LIMITS
            ********************    **********          ***************      **************
         1.   EXTRACTION EFFICIENCY                     2%                   80-110%
         2.   FLORISIL EFFICIENCY   ALDRIN              2%                   80-110%
         3.   SILICIC ACID EFF.     LINEARITY           2%                   80-110%
         4.
         5.

              INSTRUMENT AUDITS     AUDIT TYPE          AUDIT FREQUENCY      CONTROL LIMITS
              *****************     **********          ***************      **************
         1.   RETENTION TIME                            EACH RUN             4% FROM AVERAGE
         2.   DETECTOR SENSITIVITY  ALDRIN              EACH RUN             20% AT 200PG-DETECTOR
         3.   DETECTOR RESP. TO ALDRIN LINEARITY        MONTHLY              10-500 PG
         4.
         5.

APPROXIMATE DETECTION LIMIT 2 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 2 MG/KG TO 200 MG/KG

       PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB                      6 / 30 / 1977
                        QUALITY ASSURANCE DATA FOR              HEPACHLOR EPOXI

METHOD STORET  PARAMETER          SAMPLE   METHOD                                     *   #   METHOD REFERENCE
NUMBER NUMBER                     TYPE     DESCRIPTION

 114           HEPACHLOR EPOXI    FISH     DUAL COL.-ELECTRON CAPTURE-GC               Y   N   CRL PROC.

          PERFORMANCE AUDIT                    AUDIT FREQUENCY             CONTROL LIMITS
          (FOR TOTAL METHOD)                   (% OF ANALYSES)             SEE APP. #1 FOR CALCULATIONS
          ********************                 ******************          *************************
          REAGENT BLANK                        5                           2        MG/KG
          DUPLICATE ANALYSES                   5                           50%      RELATIVE PERCENT DIFFERENCE
          SPIKED SAMPLES                                                            % LOSS OR GAIN OF SPIKE
          LAB CONTROL STANDARD                 10%                         50%      RELATIVE PERCENT ERROR
          REFERENCE STANDARDS                                                       RELATIVE PERCENT ERROR

             PARTIAL METHOD AUDIT       AUDIT TYPE          AUDIT FREQUENCY    CONTROL LIMITS
             ********************       **********          ***************    **************
          1. EXTRACTION EFFICIENCY                          2%                 80-110%
          2. FLORISIL EFFICIENCY        ALDRIN              2%                 80-110%
          3. SILICIC ACID EFF.          LINEARITY           2%                 80-110%
          4.
          5.

             INSTRUMENT AUDITS          AUDIT TYPE          AUDIT FREQUENCY    CONTROL LIMITS
             *****************          **********          ***************    **************
          1. RETENTION TIME                                 EACH RUN           4% FROM AVERAGE
          2. DETECTOR SENSITIVITY       ALDRIN              EACH RUN           20% AT 200PG-DETECTOR
          3. DETECTOR RESP. TO ALDRIN   LINEARITY           MONTHLY            10-500 PG
          4.
          5.

APPROXIMATE DETECTION LIMIT 2 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 2 MG/KG TO 200 MG/KG

          PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
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QUALITY ASSURANCE DATA FOR HEXA-CHL-BENZEN

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	*	METHOD REFERENCE
117		HEXA-CHL-BENZEN	FISH	DUAL COL. -ELECTRON CAPTURE-GC	Y	N	CRL PROC.

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PERFORMANCE AUDIT (FOR TOTAL METHOD) ********************	AUDIT FREQUENCY (% OF ANALYSES) ******************	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS **************************	
REAGENT BLANK	5	5	MG/KG
DUPLICATE ANALYSES	5	50%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	10%	50%	RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT ********************	AUDIT TYPE **********	AUDIT FREQUENCY ***************	CONTROL LIMITS **************
1.	EXTRACTION EFFICIENCY		2%	80-110%
2.	FLORISIL EFFICIENCY	ALDRIN	2%	80-110%
3.	SILICIC ACID EFF.	LINEARITY	2%	80-110%
4.				
5.				

	INSTRUMENT AUDITS *****************	AUDIT TYPE **********	AUDIT FREQUENCY ***************	CONTROL LIMITS **************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	20% AT 200PG-DETECTOR
3.	DETECTOR RESP. TO ALDRIN	LINEARITY	MONTHLY	10-500 PG
4.				
5.				

APPROXIMATE DETECTION LIMIT 5 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 5 MG/KG TO 100 MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
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QUALITY ASSURANCE DATA FOR 2-4D-IPR ESTER

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
120		2-4D-IPR ESTER	FISH	DUAL COL -ELECTRON CAPTURE-GC	Y	N	CRL PROC.

PERFORMANCE AUDIT (FOR TOTAL METHOD) ********************	AUDIT FREQUENCY (% OF ANALYSES) *****************	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS ************************	
REAGENT BLANK	5	2	MG/KG
DUPLICATE ANALYSES	5	50%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	10%	50%	RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT ********************	AUDIT TYPE **********	AUDIT FREQUENCY ***************	CONTROL LIMITS **************
1.	EXTRACTION EFFICIENCY		2%	80-110%
2.	FLORISIL EFFICIENCY	ALDRIN	2%	80-110%
3.	SILICIC ACID EFF.	LINEARITY	2%	80-110%
4.				
5.				

	INSTRUMENT AUDITS *****************	AUDIT TYPE **********	AUDIT FREQUENCY ***************	CONTROL LIMITS **************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	20% AT 200PG-DETECTOR
3.	DETECTOR RESP. TO ALDRIN	LINEARITY	MONTHLY	10-500 PG
4.				
5.				

APPROXIMATE DETECTION LIMIT 2 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 2 MG/KG TO 200 MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
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QUALITY ASSURANCE DATA FOR ISODRIN

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
123		ISODRIN	FISH	DUAL COL.-ELECTRON CAPTURE-GC	Y	N	CML PROC.

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	******************	**************************	
REAGENT BLANK	5	2	MG/KG
DUPLICATE ANALYSES	5	50%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	10%	50%	RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	*************
1.	EXTRACTION EFFICIENCY		2%	80-110%
2.	FLORISIL EFFICIENCY	ALDRIN	2%	80-110%
3.	SILICIC ACID EFF.	LINEARITY	2%	80-110%
4.				
5.				

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	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	*************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	20% AT 200PG-DETECTOR
3.	DETECTOR RESP. TO ALDRIN	LINEARITY	MONTHLY	10-500 PG
4.				
5.				

APPROXIMATE DETECTION LIMIT 2 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 2 MG/KG TO 200 MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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U. S. EPA CENTRAL REGION 5 LAB               6 / 30 / 1977
9
                  QUALITY ASSURANCE DATA FOR             LINDANE

METHOD STORET  PARAMETER          SAMPLE   METHOD                                  *    #   METHOD REFERENCE
NUMBER NUMBER                     TYPE     DESCRIPTION

 126           LINDANE            FISH     DUAL COL -ELECTRON CAPTURE-GC           Y    N   CRL PROC.

           PERFORMANCE AUDIT                  AUDIT FREQUENCY             CONTROL LIMITS
           (FOR TOTAL METHOD)                 (% OF ANALYSES)             SEE APP. #1 FOR CALCULATIONS
           **********************             ****************            **************************
           REAGENT BLANK                      5                           5          MG/KG
           DUPLICATE ANALYSES                 5                           50%        RELATIVE PERCENT DIFFERENCE
           SPIKED SAMPLES                                                            % LOSS OR GAIN OF SPIKE
           LAB. CONTROL STANDARD              10%                         50%        RELATIVE PERCENT ERROR
           REFERENCE STANDARDS                                                       RELATIVE PERCENT ERROR

             PARTIAL METHOD AUDIT    AUDIT TYPE         AUDIT FREQUENCY      CONTROL LIMITS
             ********************    **********         ***************      **************
         1.  EXTRACTION EFFICIENCY                      2%                   80-110%
         2.  FLORISIL EFFICIENCY     ALDRIN             2%                   80-110%
         3.  SILICIC ACID EFF.       LINEARITY          2%                   80-110%
         4.
         5.

             INSTRUMENT AUDITS       AUDIT TYPE         AUDIT FREQUENCY      CONTROL LIMITS
             *****************       **********         ***************      **************
         1.  RETENTION TIME                             EACH RUN             4% FROM AVERAGE
         2.  DETECTOR SENSITIVITY    ALDRIN             EACH RUN             20% AT 200PG-DETECTOR
         3.  DETECTOR RESP. TO ALDRIN LINEARITY         MONTHLY              10-500 PG
         4.
         5.

APPROXIMATE DETECTION LIMIT 5 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 5 MG/KG TO 100 MG/KG

        PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB              6 / 30 / 1977
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                  QUALITY ASSURANCE DATA FOR                METHOXYCLOR

                                                                      *    #    METHOD REFERENCE
METHOD STORET  PARAMETER          SAMPLE   METHOD
NUMBER NUMBER                     TYPE     DESCRIPTION

 129           METHOXYCLOR        FISH     DUAL COL -ELECTRON CAPTURE-GC      Y    N    CAL PROC.

          PERFORMANCE AUDIT                AUDIT FREQUENCY          CONTROL LIMITS
          (FOR TOTAL METHOD)               (% OF ANALYSES)          SEE APP. #1 FOR CALCULATIONS
          *******************              ****************         **************************
          REAGENT BLANK                    5                        5          MG/KG
          DUPLICATE ANALYSES               5                        50%        RELATIVE PERCENT DIFFERENCE
          SPIKED SAMPLES                                                       % LOSS OR GAIN OF SPIKE
          LAB. CONTROL STANDARD            10%                      50%        RELATIVE PERCENT ERROR
          REFERENCE STANDARDS                                                  RELATIVE PERCENT ERROR

             PARTIAL METHOD AUDIT       AUDIT TYPE            AUDIT FREQUENCY       CONTROL LIMITS
             ********************       **********            ***************       **************
      1.     EXTRACTION EFFICIENCY                            2%                    80-110%
      2.     FLORISIL EFFICIENCY        ALDRIN                2%                    80-110%
      3.     SILICIC ACID EFF.          LINEARITY             2%                    80-110%
      4.
      5.

             INSTRUMENT AUDITS          AUDIT TYPE            AUDIT FREQUENCY       CONTROL LIMITS
             *****************          **********            ***************       **************
      1.     RETENTION TIME                                   EACH RUN              4% FROM AVERAGE
      2.     DETECTOR SENSITIVITY       ALDRIN                EACH RUN              20% AT 200PG-DETECTOR
      3.     DETECTOR RESP. TO ALDRIN   LINEARITY             MONTHLY               10-500 PG
      4.
      5.

APPROXIMATE DETECTION LIMIT 5 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 5 MG/KG TO 500 MG/KG

      PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977

QUALITY ASSURANCE DATA FOR MIREX

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
132		MIREX	FISH	DUAL COL. -ELECTRON CAPTURE-GC	Y	N	CRL PROC.

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	*****************	**************************	
REAGENT BLANK	5	5	MG/KG
DUPLICATE ANALYSES	5	50%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	10%	50%	RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	**************	*************
1.	EXTRACTION EFFICIENCY		2%	80-110%
2.	FLORISIL EFFICIENCY	ALDRIN	2%	80-110%
3.	SILICIC ACID EFF.	LINEARITY	2%	80-110%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	**************	*************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	20% AT 200PG-DETECTOR
3.	DETECTOR RESP. TO ALDRIN	LINEARITY	MONTHLY	10-500 PG
4.				
5.				

APPROXIMATE DETECTION LIMIT 5 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 5 MG/KG TO 500 MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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U. S. EPA CENTRAL REGION 5 LAB                    6 / 30 / 1977
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                 QUALITY ASSURANCE DATA FOR                 TETRAFIDON
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METHOD STORET  PARAMETER       SAMPLE   METHOD
NUMBER NUMBER                  TYPE     DESCRIPTION                     *   $   METHOD REFERENCE
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 135           TETRAFIDON      FISH     DUAL COL. -ELECTRON CAPTURE-GC
                                                                        Y   N   CAL PROC.
----------------------------------------------------------------------------------
         PERFORMANCE AUDIT               AUDIT FREQUENCY
         (FOR TOTAL METHOD)              (% OF ANALYSES)       CONTROL LIMITS
         ********************            *****************     SEE APP. #1 FOR CALCULATIONS
         REAGENT BLANK                   5                     *************************
         DUPLICATE ANALYSES              5                     10       MG/KG
         SPIKED SAMPLES                                        50%      RELATIVE PERCENT DIFFERENCE
         LAB. CONTROL STANDARD           10%                            % LOSS OR GAIN OF SPIKE
         REFERENCE STANDARDS                                   50%      RELATIVE PERCENT ERROR
                                                                        RELATIVE PERCENT ERROR
            PARTIAL METHOD AUDIT      AUDIT TYPE
            ********************      **********       AUDIT FREQUENCY     CONTROL LIMITS
         1.  EXTRACTION EFFICIENCY                     ***************     **************
         2.  FLORISIL EFFICIENCY      ALDRIN           2%                  80-110%
         3.  SILICIC ACID EFF.        LINEARITY        2%                  80-110%
         4.                                            2%                  80-110%
         5.

            INSTRUMENT AUDITS         AUDIT TYPE       AUDIT FREQUENCY     CONTROL LIMITS
            *****************         **********       ***************     **************
         1.  RETENTION TIME                            EACH RUN            4% FROM AVERAGE
         2.  DETECTOR SENSITIVITY     ALDRIN           EACH RUN            20% AT 200PG-DETECTOR
         3.  DETECTOR RESP. TO ALDRIN LINEARITY        MONTHLY             10-500 PG
         4.
         5.

APPROXIMATE DETECTION LIMIT 10 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 10 MG/KG TO 1000 MG/KG

      PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
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QUALITY ASSURANCE DATA FOR TREFLAN

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
138		TREFLAN	FISH	DUAL COL -ELECTRON CAPTURE-GC	Y	Y	CRL PROC.

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	******************	**************************	
REAGENT BLANK	5	5	MG/KG
DUPLICATE ANALYSES	5	50%-150%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	10%	50%-150%	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	QUARTERLY		RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.	EXTRACTION EFFICIENCY		2%	80-110%
2.	FLORISIL EFFICIENCY	ALDRIN	2%	80-110%
3.	SILICIC ACID EFF.	LINEARITY	2%	80-110%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	20% AT 200PG-DETECTOR
3.	DETECTOR RESP. TO ALDRIN	LINEARITY	MONTHLY	10-500 PG
4.				
5.				

APPROXIMATE DETECTION LIMIT 5 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 5 MG/KG TO 100 MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB
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QUALITY ASSURANCE DATA FOR ZYTRON

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	* Y	# N	METHOD REFERENCE CRL PROC.
141		ZYTRON	FISH	DUAL COL. -ELECTRON CAPTURE-GC			

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	*****************	**************************	
REAGENT BLANK	5	5	MG/KG
DUPLICATE ANALYSES	5	50%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	10%	50%	RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.	EXTRACTION EFFICIENCY		2%	80-110%
2.	FLORISIL EFFICIENCY	ALDRIN	2%	80-110%
3.	SILICIC ACID EFF.	LINEARITY	2%	80-110%
4.				
5.				

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	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	20% AT 200PG-DETECTOR
3.	DETECTOR RESP. TO ALDRIN	LINEARITY	MONTHLY	10-500 PG
4.				
5.				

APPROXIMATE DETECTION LIMIT 5 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 5 MG/KG TO 100 MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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U. S. EPA CENTRAL REGION 5 LAB                 6 / 30 / 1977
                    QUALITY ASSURANCE DATA FOR            AZINPHOS-METHYL

METHOD STORET  PARAMETER          SAMPLE   METHOD                               *    *   METHOD REFERENCE
NUMBER NUMBER                     TYPE     DESCRIPTION

 144           AZINPHOS-METHYL    WATER    DUAL COL.-FLAME PHOTOMETRIC-GC       N    Y   REF.7

        PERFORMANCE AUDIT                  AUDIT FREQUENCY            CONTROL LIMITS
        (FOR TOTAL METHOD)                 (% OF ANALYSES)            SEE APP.#1 FOR CALCULATIONS
        ********************               *****************          ***************************
        REAGENT BLANK                      5                          30             UG/L
        DUPLICATE ANALYSES                 5                          50-150% OF AVG.RELATIVE PERCENT DIFFERENCE
        SPIKED SAMPLES                                                               % LOSS OR GAIN OF SPIKE
        LAB.CONTROL STANDARD               10%                        50-150%-TRUEVALRELATIVE PERCENT ERROR
        REFERENCE STANDARDS                QUARTERLY                                 RELATIVE PERCENT ERROR

           PARTIAL METHOD AUDIT        AUDIT TYPE          AUDIT FREQUENCY     CONTROL LIMITS
           ********************        **********          ***************     **************
        1. EXTRACTION EFFICIENCY       % RECOVERY          2%                  80-120%
        2. FLORISIL EFFICIENCY         % RECOVERY          2%                  80-120%
        3. SILICIC ACID EFF.           % RECOVERY          2%                  80-120%
        4.
        5.

           INSTRUMENT AUDITS           AUDIT TYPE          AUDIT FREQUENCY     CONTROL LIMITS
           *****************           **********          ***************     **************
        1. RETENTION TIME                                  EACH RUN            4% FROM AVERAGE
        2. DETECTOR SENSITIVITY        ALDRIN              EACH RUN            50% AT 5UG-DETECTOR
        3. DETECTOR RESP. TO PHORATE LINEARITY             1%                  1-50 UG
        4.
        5.

APPROXIMATE DETECTION LIMIT 30 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 30 UG/L TO 300 UG/L

        PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977

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QUALITY ASSURANCE DATA FOR COUMAPHOS

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
147		COUMAPHOS	WATER	DUAL COL. -FLAME PHOTOMETRIC-GC	N	Y	REF. 7

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	******************	***************************	
REAGENT BLANK	5	30	UG/L
DUPLICATE ANALYSES	5	50-150% OF AVG.	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	10%	50-150%TRUEVAL.	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	QUARTERLY		RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.	EXTRACTION EFFICIENCY	% RECOVERY	2%	80-120%
2.	FLORISIL EFFICIENCY	% RECOVERY	2%	80-120%
3.	SILICIC ACID EFF.	% RECOVERY	2%	80-120%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	******************	**********	***************	**************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	50% AT 5UG-DETECTOR
3.	DETECTOR RESP. TO PHORATE	LINEARITY	1X	1-50 UG
4.				
5.				

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APPROXIMATE DETECTION LIMIT 30 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 30 UG/L TO 300 UG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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U. S. EPA CENTRAL REGION 5 LAB                         6 / 30 / 1977
,                         QUALITY ASSURANCE DATA FOR           DEF

                                                                                                *    #   METHOD REFERENCE
METHOD STORET PARAMETER           SAMPLE    METHOD
NUMBER NUMBER                     TYPE      DESCRIPTION

150           DEF                 WATER     DUAL COL.-FLAME PHOTOMETRIC-GC                      N    Y   REF.7

         PERFORMANCE AUDIT                  AUDIT FREQUENCY              CONTROL LIMITS
         (FOR TOTAL METHOD)                 (% OF ANALYSES)              SEE APP. #1 FOR CALCULATIONS
         ********************               *****************            **************************
         REAGENT BLANK                      5                            2              UG/L
         DUPLICATE ANALYSES                 5                            50-150%OF AVG. RELATIVE PERCENT DIFFERENCE
         SPIKED SAMPLES                                                                 % LOSS OR GAIN OF SPIKE
         LAB.CONTROL STANDARD               10%                          50-150%TRUEVAL.RELATIVE PERCENT ERROR
         REFERENCE STANDARDS                QUARTERLY                                   RELATIVE PERCENT ERROR

             PARTIAL METHOD AUDIT     AUDIT TYPE               AUDIT FREQUENCY          CONTROL LIMITS
             ********************     **********               ***************          **************
          1. EXTRACTION EFFICIENCY    % RECOVERY               2X                       80-120%
          2. FLORISIL EFFICIENCY      % RECOVERY               2X                       80-120%
          3. SILICIC ACID EFF.        % RECOVERY               2X                       80-120%
          4.
          5.

             INSTRUMENT AUDITS        AUDIT TYPE               AUDIT FREQUENCY          CONTROL LIMITS
             *****************        **********               ***************          **************
          1. RETENTION TIME                                    EACH RUN                 4% FROM AVERAGE
          2. DETECTOR SENSITIVITY     ALDRIN                   EACH RUN                 50% AT 5UG-DETECTOR
          3. DETECTOR RESP. TO PHORATE LINEARITY               1X                       1-50 UG
          4.
          5.

APPROXIMATE DETECTION LIMIT 2 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 2 UG/L TO 20 UG/L

         PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977

QUALITY ASSURANCE DATA FOR DIAZINON

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
153	39570	DIAZINON	WATER	DUAL COL. -FLAME PHOTOMETRIC-GC	N	Y	REF. 7

PERFORMANCE AUDIT (FOR TOTAL METHOD) ********************	AUDIT FREQUENCY (% OF ANALYSES) *****************	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS ***************************	
REAGENT BLANK	5	3	UG/L
DUPLICATE ANALYSES	5	50-150%OF AVG.	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	10%	50-150%TRUEVAL.	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	QUARTERLY		RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT ********************	AUDIT TYPE **********	AUDIT FREQUENCY ***************	CONTROL LIMITS **************
1.	EXTRACTION EFFICIENCY	% RECOVERY	2%	80-120%
2.	FLORISIL EFFICIENCY	% RECOVERY	2%	80-120%
3.	SILICIC ACID EFF.	% RECOVERY	2%	80-120%
4.				
5.				

	INSTRUMENT AUDITS *****************	AUDIT TYPE **********	AUDIT FREQUENCY ***************	CONTROL LIMITS **************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	50% AT 5UG-DETECTOR
3.	DETECTOR RESP. TO PHORATE	LINEARITY	1%	1-50 UG
4.				
5.				

APPROXIMATE DETECTION LIMIT 3 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 3 UG/L TO 30 UG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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U. S. EPA CENTRAL REGION 5 LAB                      6 / 30 / 1977
                       QUALITY ASSURANCE DATA FOR                 DURSBAN
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METHOD STORET  PARAMETER          SAMPLE   METHOD                        *    #   METHOD REFERENCE
NUMBER NUMBER                     TYPE     DESCRIPTION
-----------------------------------------------------------------------------
 156           DURSBAN            WATER    DUAL COL.-FLAME PHOTOMETRIC-GC  N    Y   REF.7
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     PERFORMANCE AUDIT                     AUDIT FREQUENCY            CONTROL LIMITS
     (FOR TOTAL METHOD)                    (% OF ANALYSES)            SEE APP.#1 FOR CALCULATIONS
     ********************                  *****************          ***************************
     REAGENT BLANK                         5                          2                 UG/L
     DUPLICATE ANALYSES                    5                          50-150%OF AVG.    RELATIVE PERCENT DIFFERENCE
     SPIKED SAMPLES                                                                     % LOSS OR GAIN OF SPIKE
     LAB.CONTROL STANDARD                  10%                        50-150%TRUE VAL.  RELATIVE PERCENT ERROR
     REFERENCE STANDARDS                   QUARTERLY                                    RELATIVE PERCENT ERROR

        PARTIAL METHOD AUDIT      AUDIT TYPE          AUDIT FREQUENCY      CONTROL LIMITS
        ********************      **********          ***************      **************
     1. EXTRACTION EFFICIENCY     % RECOVERY          2%                   80-120%
     2. FLORISIL EFFICIENCY       % RECOVERY          2%                   80-120%
     3. SILICIC ACID EFF.         % RECOVERY          2%                   80-120%
     4.
     5.

        INSTRUMENT AUDITS         AUDIT TYPE          AUDIT FREQUENCY      CONTROL LIMITS
        *****************         **********          ***************      **************
     1. RETENTION TIME                                EACH RUN             4% FROM AVERAGE
     2. DETECTOR SENSITIVITY      ALDRIN              EACH RUN             50% AT 5UG-DETECTOR
     3. DETECTOR RESP. TO PHORATE LINEARITY           1%                   1-50 UG
     4.
     5.

APPROXIMATE DETECTION LIMIT 2 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 2 UG/L TO 20 UG/L

     PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB                    6 / 30 / 1977
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                      QUALITY ASSURANCE DATA FOR              DYFONATE

METHOD STORET  PARAMETER           SAMPLE    METHOD                                                   *    #   METHOD REFERENCE
NUMBER NUMBER                      TYPE      DESCRIPTION

 159           DYFONATE            WATER     DUAL COL.-FLAME PHOTOMETRIC-GC                           N    Y   REF.7

         PERFORMANCE AUDIT                  AUDIT FREQUENCY               CONTROL LIMITS
         (FOR TOTAL METHOD)                 (% OF ANALYSES)               SEE APP.#1 FOR CALCULATIONS
         ********************               *****************             **************************
         REAGENT BLANK                      5                             3              UG/L
         DUPLICATE ANALYSES                 5                             50-150%OF AVG. RELATIVE PERCENT DIFFERENCE
         SPIKED SAMPLES                                                                  % LOSS OR GAIN OF SPIKE
         LAB.CONTROL STANDARD               10%                           50-150%TRUE VAL.RELATIVE PERCENT ERROR
         REFERENCE STANDARDS                QUARTERLY                                    RELATIVE PERCENT ERROR

          PARTIAL METHOD AUDIT     AUDIT TYPE               AUDIT FREQUENCY          CONTROL LIMITS
          ********************     **********               ***************          **************
     1.   EXTRACTION EFFICIENCY    % RECOVERY               2%                       80-120%
     2.   FLORISIL EFFICIENCY      % RECOVERY               2%                       80-120%
     3.   SILICIC ACID EFF.        % RECOVERY               2%                       80-120%
     4.
     5.

          INSTRUMENT AUDITS        AUDIT TYPE               AUDIT FREQUENCY          CONTROL LIMITS
          *****************        **********               ***************          **************
     1.   RETENTION TIME                                    EACH RUN                 4% FROM AVERAGE
     2.   DETECTOR SENSITIVITY     ALDRIN                   EACH RUN                 50% AT 5UG-DETECTOR
     3.   DETECTOR RESP. TO PHORATE LINEARITY               1%                       1-50 UG
     4.
     5.

APPROXIMATE DETECTION LIMIT 3 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 3 UG/L TO 30 UG/L

         PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977

QUALITY ASSURANCE DATA FOR EPN

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
142		EPN	WATER	DUAL COL. -FLAME PHOTOMETRIC-GC	N	Y	REF. 7

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	*****************	**************************	
REAGENT BLANK	5	1	UG/L
DUPLICATE ANALYSES	5	50-150%OF AVG.	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	10%	50-150%TRUEVAL.	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	QUARTERLY		RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	*************
1.	EXTRACTION EFFICIENCY	% RECOVERY	2%	80-120%
2.	FLORISIL EFFICIENCY	% RECOVERY	2%	80-120%
3.	SILICIC ACID EFF.	% RECOVERY	2%	80-120%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	******************	**********	***************	*************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	50% AT 5UG-DETECTOR
3.	DETECTOR RESP. TO PHORATE	LINEARITY	1%	1-50 UG
4.				
5.				

APPROXIMATE DETECTION LIMIT 1 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 1 UG/L TO 10 UG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977

QUALITY ASSURANCE DATA FOR ETHION

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
165	39398	ETHION	WATER	DUAL COL. -FLAME PHOTOMETRIC-GC	N	Y	REF. 7

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	*****************	**************************	
REAGENT BLANK	5	8	UG/L
DUPLICATE ANALYSES	5	50-150%OF AVG.	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	10%	50-150%TRUEVAL.	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	QUARTERLY		RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*********************	**********	***************	**************
1.	EXTRACTION EFFICIENCY	% RECOVERY	2%	80-120%
2.	FLORISIL EFFICIENCY	% RECOVERY	2%	80-120%
3.	SILICIC ACID EFF.	% RECOVERY	2%	80-120%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	******************	**********	***************	*************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	50% AT 5UG-DETECTOR
3.	DETECTOR RESP. TO PHORATE	LINEARITY	1%	1-50 UG
4.				
5.				

APPROXIMATE DETECTION LIMIT 8 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 8 UG/L TO 80 UG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977

QUALITY ASSURANCE DATA FOR MALATHION

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
168	39530	MALATHION	WATER	DUAL COL. -FLAME PHOTOMETRIC-GC	N	Y	REF. 7

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	****************	*************************	
REAGENT BLANK	5	4	UG/L
DUPLICATE ANALYSES	5	50-150%OF AVG.	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	10%	50-150%TRUEVAL.	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	QUARTERLY		RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	*********	***************	*************
1.	EXTRACTION EFFICIENCY	% RECOVERY	2%	80-120%
2.	FLORISIL EFFICIENCY	% RECOVERY	2%	80-120%
3.	SILICIC ACID EFF.	% RECOVERY	2%	80-120%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	******************	**********	***************	*************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	50% AT SUG-DETECTOR
3.	DETECTOR RESP. TO PHORATE	LINEARITY	1%	1-50 UG
4.				
5.				

APPROXIMATE DETECTION LIMIT 4 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 4 UG/L TO 40 UG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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U. S. EPA CENTRAL REGION 5 LAB                    6 / 30 / 1977
                        QUALITY ASSURANCE DATA FOR         METHYLPARATHION
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METHOD STORET PARAMETER        SAMPLE  METHOD                          *  #  METHOD REFERENCE
NUMBER NUMBER                  TYPE    DESCRIPTION
__________________________________________________________________________
 171   39600  METHYLPARATHION  WATER   DUAL COL.-FLAME PHOTOMETRIC-GC  N  Y  REF.7
__________________________________________________________________________

          PERFORMANCE AUDIT           AUDIT FREQUENCY          CONTROL LIMITS
          (FOR TOTAL METHOD)          (% OF ANALYSES)          SEE APP.#1 FOR CALCULATIONS
          ********************        *****************        ***************************
          REAGENT BLANK               5                        4              UG/L
          DUPLICATE ANALYSES          5                        50-150%OF AVG. RELATIVE PERCENT DIFFERENCE
          SPIKED SAMPLES                                                      % LOSS OR GAIN OF SPIKE
          LAB.CONTROL STANDARD        10%                      50-150%TRUEVAL.RELATIVE PERCENT ERROR
          REFERENCE STANDARDS         QUARTERLY                               RELATIVE PERCENT ERROR

             PARTIAL METHOD AUDIT    AUDIT TYPE          AUDIT FREQUENCY    CONTROL LIMITS
             ********************    **********          ***************    **************
          1. EXTRACTION EFFICIENCY   % RECOVERY          2%                 80-120%
          2. FLORISIL EFFICIENCY     % RECOVERY          2%                 80-120%
          3. SILICIC ACID EFF.       % RECOVERY          2%                 80-120%
          4.
          5.

             INSTRUMENT AUDITS       AUDIT TYPE          AUDIT FREQUENCY    CONTROL LIMITS
             *****************       **********          ***************    **************
          1. RETENTION TIME                              EACH RUN           4% FROM AVERAGE
          2. DETECTOR SENSITIVITY    ALDRIN              EACH RUN           50% AT 5 UG-DETECTOR
          3. DETECTOR RESP. TO PHORATE LINEARITY         1%                 1-50 UG
          4.
          5.

APPROXIMATE DETECTION LIMIT 4 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 4 UG/L TO 40 UG/L

          PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
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QUALITY ASSURANCE DATA FOR PARATHION

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
174	39540	PARATHION	WATER	DUAL COL. -FLAME PHOTOMETRIC-GC	N	Y	REF. 7

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	****************	*************************	
REAGENT BLANK	5	4	UG/L
DUPLICATE ANALYSES	5	50-150%OF AVG.	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	10%	50-150%TRUEVAL.	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	QUARTERLY		RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	*************
1.	EXTRACTION EFFICIENCY	% RECOVERY	2%	0-120%
2.	FLORISIL EFFICIENCY	% RECOVERY	2%	80-120%
3.	SILICIC ACID EFF.	% RECOVERY	2%	80-120%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	*************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	50% AT 5UG-DETECTOR
3.	DETECTOR RESP. TO PHORATE	LINEARITY	1%	1-50 UG
4.				
5.				

APPROXIMATE DETECTION LIMIT 4 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 4 UG/L TO 40 UG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977

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QUALITY ASSURANCE DATA FOR PHENCAPTAN

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
177		PHENCAPTAN	WATER	DUAL COL.-FLAME PHOTOMETRIC-GC	N	Y	REF. 7

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
REAGENT BLANK	5	10	UG/L
DUPLICATE ANALYSES	5	50-150%OF AVG.	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	10%	50-150%TRUEVAL.	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	QUARTERLY		RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
1.	EXTRACTION EFFICIENCY	% RECOVERY	2%	80-120%
2.	FLORISIL EFFICIENCY	% RECOVERY	2%	80-120%
3.	SILICIC ACID EFF.	% RECOVERY	2%	80-120%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	50% AT 5UG-DETECTOR
3.	DETECTOR RESP. TO PHORATE	LINEARITY	1%	1-50 UG
4.				
5.				

APPROXIMATE DETECTION LIMIT 10 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 10 UG/L TO 100 UG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977

QUALITY ASSURANCE DATA FOR PHORATE

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	*	METHOD REFERENCE
180		PHORATE	WATER	DUAL COL. -FLAME PHOTOMETRIC-GC	N	Y	REF. 7

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	****************	**************************	
REAGENT BLANK	5	15	UG/L
DUPLICATE ANALYSES	5	50-150%OF AVG.	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	10%	50-150%TRUEVAL.	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	QUARTERLY		RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	*********	***************	*************
1.	EXTRACTION EFFICIENCY	RECOVERY	2%	80-120%
2.	FLORISIL EFFICIENCY	% RECOVERY	2%	80-120%
3.	SILICIC ACID EFF.	% RECOVERY	2%	80-120%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	*************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	50% AT 5UG-DETECTOR
3.	DETECTOR RESP. TO PHORATE	LINEARITY	1%	1-50 UG
4.				
5.				

APPROXIMATE DETECTION LIMIT 15 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 15 UG/L TO 150 UG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977

QUALITY ASSURANCE DATA FOR RONNEL

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
183		RONNEL	WATER	DUAL COL. -FLAME PHOTOMETRIC-GC	N	Y	REF. 7

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	****************	**************************	
REAGENT BLANK	5	7	UG/L
DUPLICATE ANALYSES	5	50-150%OF AVG.	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	10%	50-150%TRUEVAL.	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	QUARTERLY		RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.	EXTRACTION EFFICIENCY	% RECOVERY	2%	80-120%
2.	FLORISIL EFFICIENCY	% RECOVERY	2%	80-120%
3.	SILICIC ACID EFF.	% RECOVERY	2%	80-120%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	******************	**********	***************	**************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	50% AT 5UG-DETECTOR
3.	DETECTOR RESP. TO PHORATE	LINEARITY	1%	1-50 UG
4.				
5.				

APPROXIMATE DETECTION LIMIT 7 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 7 UG/L TO 70 UG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977

QUALITY ASSURANCE DATA FOR PCB'S-1016/1242

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
186		PCB'S-1016/1242	FISH	SOXHLET-GEL PERMEATION-GC	N	Y	CRL PROC.

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	*****************	**************************	
REAGENT BLANK	5	1	MG/KG
DUPLICATE ANALYSES	5	50-150%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB CONTROL STANDARD	10%	50-150%	RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*******************	**********	***************	*************
1.	EXTRACTION EFFICIENCY	% RECOVERY	2%	80-100%
2.	FLORISIL EFFICIENCY	% RECOVERY	2%	80-100%
3.	SILICIC ACID EFF.	% RECOVERY	0.5%	80-100%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	*************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	WITHIN 50%AT 1NG-DETECTOR
3.	DETECTOR RESPONSE	LINEARITY	MONTHLY	NONE
4.				
5.				

APPROXIMATE DETECTION LIMIT 1 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM MG/KG TO MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977

QUALITY ASSURANCE DATA FOR PCB'S-1248

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	* N	* Y	METHOD REFERENCE CRL PROC.
189		PCB'S-1248	FISH	SOXHLET-GEL PERMEATION-GC			

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	******************	**************************	
REAGENT BLANK	5	1	MG/KG .
DUPLICATE ANALYSES	5	50-150%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	10%	50-150%	RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	*************
1.	EXTRACTION EFFICIENCY	% RECOVERY	2%	60-100%
2.	FLORISIL EFFICIENCY	% RECOVERY	2%	80-100%
3.	SILICIC ACID EFF.	% RECOVERY	0.5%	80-100%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	******************	**********	***************	*************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	WITHIN 50%AT 1NG-DETECTOR
3.	DETECTOR RESPONSE	LINEARITY	MONTHLY	NONE
4.				
5.				

APPROXIMATE DETECTION LIMIT 1 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM MG/KG TO MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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QUALITY ASSURANCE DATA FOR PCB'S-1254

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	*	METHOD REFERENCE
192		PCB'S-1254	FISH	SOXHLET-GEL PERMEATION-GC	N	Y	CRL PROC.

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	*****************	**************************	
REAGENT BLANK	5	1	MG/KG
DUPLICATE ANALYSES	5	50-150%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	10%	50-150%	RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.	EXTRACTION EFFICIENCY	% RECOVERY	2%	80-100%
2.	FLORISIL EFFICIENCY	% RECOVERY	2%	80-100%
3.	SILICIC ACID EFF.	% RECOVERY	0.5%	80-100%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	WITHIN 50%AT 1NO-DETECTOR
3.	DETECTOR RESPONSE	LINEARITY	MONTHLY	NONE
4.				
5.				

APPROXIMATE DETECTION LIMIT 1 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM MG/KG TO MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
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QUALITY ASSURANCE DATA FOR PCB'S-1260

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
195		PCB'S-1260	FISH	SOXHLET-GEL PERMEATION-GC	N	Y	CRL PROC.

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	*****************	**************************	
REAGENT BLANK	5	1	MG/KG
DUPLICATE ANALYSES	5	50-150%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	10%	50-150%	RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.	EXTRACTION EFFICIENCY	% RECOVERY	2%	80-100%
2.	FLORISIL EFFICIENCY	% RECOVERY	2%	80-100%
3.	SILICIC ACID EFF.	% RECOVERY	0.5%	80-100%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	WITHIN 50%AT 1NG-DETECTOR
3.	DETECTOR RESPONSE	LINEARITY	MONTHLY	NONE
4.				
5.				

APPROXIMATE DETECTION LIMIT 1 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM MG/KG TO MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
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QUALITY ASSURANCE DATA FOR PCB'S-1016/1242

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
196	39499	PCB'S-1016/1242	SEDIMENT	SOXHLET EXT.-FLORISIL-GC	YES	YES	REF. 5

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	*****************	*************************	
REAGENT BLANK	5	1	MG/KG
DUPLICATE ANALYSES	5	50	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB CONTROL STANDARD	10	50	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	QUARTERLY	50	RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.	EXTRACTION EFF.	% RECOVERY	2%	80-110%
2.	FLORISIL EFFICIENCY	% RECOVERY	2%	80-110%
3.	SILICIC ACID EFF.	% RECOVERY	2%	80-110%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	20% OF NORMAL
3.	DETECTOR RESPONSE	LINEARITY	MONTHLY	20% FROM NORMAL
4.				
5.				

APPROXIMATE DETECTION LIMIT 1 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 1 MG/KG TO 100 MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
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QUALITY ASSURANCE DATA FOR PCBS-1248

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	*	METHOD REFERENCE
201	39503	PCBS-1248	SEDIMENT	SOXHLET-FLORISIL-GC	YES	YES	REF. 5

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
REAGENT BLANK	5	1	MG/KG
DUPLICATE ANALYSES	5	50	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	10	50	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	QUARTERLY	50	RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
1.	EXTRACTION EFF.	% RECOVERY	2%	80-110%
2.	FLORISIL EFF.	% RECOVERY	2%	80-110%
3.	SILICIC ACID EFF.	% RECOVERY	2%	80-110%
4.				
5.				

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	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	20% FROM NORMAL
3.	DETECTOR RESPONSE	LINEARITY	MONTHLY	20% FROM NORMAL
4.				
5.				

APPROXIMATE DETECTION LIMIT 1 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 1 MG/KG TO 100 MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977

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QUALITY ASSURANCE DATA FOR PCBS-1254

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	*	METHOD REFERENCE
204	39507	PCBS-1254	SEDIMENT	SOXHLET-FLORISIL-GC	YES	YES	REF. 5

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	*****************	*************************	
REAGENT BLANK	5	1	MG/KG
DUPLICATE ANALYSES	5	50	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	10	50	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	QUARTERLY		RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	*************
1.	EXTRACTION EFF.	% RECOVERY	2%	80-110%
2.	FLORISIL EFF.	% RECOVERY	2%	80-110%
3.	SILICIC ACID EFF.	% RECOVERY	2%	80-110%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	*************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	20% FROM NORMAL
3.	DETECTOR RESPONSE	LINEARITY	MONTHLY	20% FROM NORMAL
4.				
5.				

APPROXIMATE DETECTION LIMIT 1 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 1 MG/KG TO 100 MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
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QUALITY ASSURANCE DATA FOR PCBS-1260

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
207	39511	PCBS-1260	SEDIMENT	SOXHLET-FLORISIL-GC	YES	YES	REF. 5

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	******************	******************************	
REAGENT BLANK	5	1	MG/KG
DUPLICATE ANALYSES	5	50	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	10	50	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	QUARTERLY		RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	**************	***************
1.	EXTRACTION EFF.	% RECOVERY	2%	80-110%
2.	FLORISIL EFF.	% RECOVERY	2%	80-110%
3.	SILICIC ACID EFF.	% RECOVERY	2%	80-110%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	******************	**********	**************	**************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	20% FROM NORMAL
3.	DETECTOR RESPONSE	LINEARITY	MONTHLY	20% FROM NORMAL
4.				
5.				

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APPROXIMATE DETECTION LIMIT 1 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 1 MG/KG TO 100 MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977

QUALITY ASSURANCE DATA FOR PCBS-1016/1242

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
210	39496	PCBS-1016/1242	WATER	DUAL COL. -ELECTRON CAPTURE-GC	YES	YES	REF. 6

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	*****************	*************************	
REAGENT BLANK	5	<200	NG/L
DUPLICATE ANALYSES	5		RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	5	30-200%REC.	% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	5	50-150%	RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	**************	*************
1.	EXTRACTION EFF.	% RECOVERY	2%	50-150%
2.	FLORISIL EFF.	% RECOVERY	2%	50-150%
3.	SILICIC ACID EFF.	% RECOVERY	0.5%	50-150%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	*************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	50% FOR 1NG
3.	DETECTOR LINEARITY	ALDRIN	MONTHLY	NONE
4.				
5.				

APPROXIMATE DETECTION LIMIT 200 NG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 200 NG/L TO 2000 NG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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QUALITY ASSURANCE DATA FOR PCBS-1248

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
213	39500	PCBS-1248	WATER	DUAL COL. -ELECTRON CAPTURE-GC	YES	YES	REF. 6

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	****************	*************************	
REAGENT BLANK	5	<200	NG/L
DUPLICATE ANALYSES	5		RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	5	30-200%REC.	% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	5	50-150%	RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.	EXTRACTION EFF.	% RECOVERY	2%	50-150%
2.	FLORISIL EFF.	% RECOVERY	2%	50-150%
3.	SILICIC ACID EFF.	% RECOVERY	0.5%	50-150%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	50% FOR 1NG
3.	DETECTOR LINEARITY	ALDRIN	MONTHLY	NONE
4.				
5.				

APPROXIMATE DETECTION LIMIT 200 NG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 200 NG/L TO 2000 NG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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QUALITY ASSURANCE·DATA FOR PCBS-1254

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	*	METHOD REFERENCE
216	39504	PCBS-1254	WATER	DUAL COL. -ELECTRON CAPTURE-GC	YES	YES	REF. 6

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
**********************	******************	**************************	
REAGENT BLANK	5	<200	NG/L
DUPLICATE ANALYSES	5		RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	5	30-200%REC.	% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	5	50-150%	RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	**********************	**********	***************	**************
1.	EXTRACTION EFF.	% RECOVERY	2%	50-150%
2.	FLORISIL EFF.	% RECOVERY	2%	50-150%
3.	SILICIC ACID EFF.	% RECOVERY	0.5%	50-150%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	50% FOR 1NG
3.	DETECTOR LINEARITY	ALDRIN	MONTHLY	NONE
4.				
5.				

APPROXIMATE DETECTION LIMIT 200 NG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 200 NG/L TO 2000 NG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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QUALITY ASSURANCE DATA FOR PCBS-1260

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
219	39508	PCBS-1260	WATER	DUAL COL. -ELECTRON CAPTURE-GC	YES	YES	REF. 6

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	*****************	**************************	
REAGENT BLANK	5	<200	NG/L
DUPLICATE ANALYSES	5		RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	5	30-200%REC.	% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	5	50-150%	RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.	EXTRACTION EFF.	% RECOVERY	2%	50-150%
2.	FLORISIL EFF.	% RECOVERY	2%	50-150%
3.	SILICIC ACID EFF.	% RECOVERY	0. 5%	50-150%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	50% FOR 1 NG
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT 200 NG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 200 NG/L TO 2000 NG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
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QUALITY ASSURANCE DATA FOR ALDRIN

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	*	METHOD REFERENCE
222		ALDRIN	SEDIMENT	DUAL COL. -ELECTRON CAPTURE-GC	Y	Y	ALT. TEST

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	*****************	**************************	
REAGENT BLANK	5	1	MG/KG
DUPLICATE ANALYSES	5	50-150%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	5	50-150%	% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD			RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*********************	**********	***************	**************
1.	EXTRACTION EFFICIENCY	% RECOVERY	2%	80-110%
2.	FLORISIL EFFICIENCY	% RECOVERY	2%	80-110%
3.	SILICIC ACID EFF.	% RECOVERY	2%	80-110%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	******************	**********	***************	**************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	20%AT 200PG-DETECTOR
3.	DETECTOR RESPONSE	LINEARITY	MONTHLY	10-500 PG
4.				
5.				

APPROXIMATE DETECTION LIMIT 1 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 1 MG/KG TO 50 MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
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QUALITY ASSURANCE DATA FOR BETA-BHC

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
225		BETA-BHC	SEDIMENT	DUAL COL. -ELECTRON CAPTURE-GC	Y	Y	ALT TEST

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	*****************	**************************	
REAGENT BLANK	5	1	MG/KG
DUPLICATE ANALYSES	5	50-150%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	5	50-150%	% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD			RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.	EXTRACTION EFFICIENCY	% RECOVERY	2%	80-110%
2.	FLORISIL EFFICIENCY	% RECOVERY	2%	80-110%
3.	SILICIC ACID EFF.	% RECOVERY	2%	80-110%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	20%AT 200PG-DETECTOR
3.	DETECTOR RESPONSE	LINEARITY	MONTHLY	10-500 PG
4.				
5.				

APPROXIMATE DETECTION LIMIT 1 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 1 MG/KG TO 50 MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977

QUALITY ASSURANCE DATA FOR CHLOROBENZILATE

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	*	METHOD REFERENCE
228		CHLOROBENZILATE	SEDIMENT	DUAL COL. -ELECTRON CAPTURE-GC	Y	Y	ALT. TEST

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	****************	************************	
REAGENT BLANK	5	10	MG/KG
DUPLICATE ANALYSES	5	50-150%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	5	50-150%	% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD			RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.	EXTRACTION EFFICIENCY	% RECOVERY	2%	80-110%
2.	FLORISIL EFFICIENCY	% RECOVERY	2%	80-110%
3.	SILICIC ACID EFF.	% RECOVERY	2%	80-110%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	20%AT 200PG-DETECTOR
3.	DETECTOR RESPONSE	LINEARITY	MONTHLY	10-500 PG
4.				
5.				

APPROXIMATE DETECTION LIMIT 10 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 10 MG/KG TO 1000 MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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QUALITY ASSURANCE DATA FOR DCPA

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	*	METHOD REFERENCE
231		DCPA	SEDIMENT	DUAL COL. -ELECTRON CAPTURE-GC	Y	Y	ALT. TEST

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	****************	************************	
REAGENT BLANK	5	2	MG/KG
DUPLICATE ANALYSES	5	50-150%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	5	50-150%	% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD			RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	*************
1.	EXTRACTION EFFICIENCY	% RECOVERY	2%	80-110%
2.	FLORISIL EFFICIENCY	% RECOVERY	2%	80-110%
3.	SILICIC ACID EFF.	% RECOVERY	2%	80-110%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	*************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	20%AT 200PG-DETECTOR
3.	DETECTOR RESPONSE	LINEARITY	MONTHLY	10-500 PG
4.				
5.				

APPROXIMATE DETECTION LIMIT 2 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 2 MG/KG TO 200 MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
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QUALITY ASSURANCE DATA FOR O P'-DDD

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
234	39316	O P'-DDD	SEDIMENT	DUAL COL.-ELECTRON CAPTURE-GC	YES	YES	ALT. TEST

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	****************	**************************	
REAGENT BLANK	5	2	MG/KG
DUPLICATE ANALYSES	5	50-150%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	5	50-150%	% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD			RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.	EXTRACTION EFF.	% RECOVERY	2%	80-110%
2.	FLORISIL EFF.	% RECOVERY	2%	80-110%
3.	SILICIC ACID EFF.	% RECOVERY	2%	80-110%
4.				
5.				

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	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	20%AT 200PG-DETECTOR
3.	DETECTOR RESPONSE	LINEARITY	MONTHLY	10-500 PG
4.				
5.				

APPROXIMATE DETECTION LIMIT 2 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 2 MG/KG TO 200 MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977

QUALITY ASSURANCE DATA FOR P P'-DDD

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
237	39311	P P'-DDD	SEDIMENT	DUAL COL. -ELECTRON CAPTURE-GC	YES	YES	ALT. TEST

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
REAGENT BLANK	5	2	MG/KG
DUPLICATE ANALYSES	5	50-150%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	5	50-150%	% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD			RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
1.	EXTRACTION EFF.	% RECOVERY	2%	80-110%
2.	FLORISIL EFF.	% RECOVERY	2%	80-110%
3.	SILICIC ACID EFF.	% RECOVERY	2%	60-110%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	20%AT 200PG-DETECTOR
3.	DETECTOR RESPONSE	LINEARITY	MONTHLY	10-500 PG
4.				
5.				

APPROXIMATE DETECTION LIMIT 2 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 2 MG/KG TO 200 MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
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QUALITY ASSURANCE DATA FOR O P'-DDE

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
240		O P'-DDE	SEDIMENT	DUAL COL. -ELECTRON CAPTURE-GC	Y	Y	ALT. TEST

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	******************	***************************	
REAGENT BLANK	5	2	MG/KG
DUPLICATE ANALYSES	5	50-150%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	5	50-150%	% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD			RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.	EXTRACTION EFFICIENCY	% RECOVERY	2%	80-110%
2.	FLORISIL EFFICIENCY	% RECOVERY	2%	80-110%
3.	SILICIC ACID EFF.	% RECOVERY	2%	80-110%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	20%AT 200PG-DETECTOR
3.	DETECTOR RESPONSE	LINEARITY	MONTHLY	10-500 PG
4.				
5.				

APPROXIMATE DETECTION LIMIT 2 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 2 MG/KG TO 200 MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
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QUALITY ASSURANCE DATA FOR P P'-DDE

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
243	39321	P P'-DDE	SEDIMENT	DUAL COL. -ELECTRON CAPTURE-GC	YES	YES	ALT. TEST

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	****************	***************************	
REAGENT BLANK	5	2	MG/KG
DUPLICATE ANALYSES	5	50-150%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	5	50-150%	% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD			RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	*************
1.	EXTRACTION EFF.	% RECOVERY	2%	80-110%
2.	FLORISIL EFF.	% RECOVERY	2%	80-110%
3.	SILICIC ACID EFF.	% RECOVERY	2%	80-110%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	*************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	20%AT 200PG-DETECTOR
3.	DETECTOR RESPONSE	LINEARITY	MONTHLY	10-500 PG
4.				
5.				

APPROXIMATE DETECTION LIMIT 2 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 2 MG/KG TO 200 MG/KG

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                      QUALITY ASSURANCE DATA FOR          O P'-DDT
---------------------------------------------------------------------------------------
METHOD STORET  PARAMETER          SAMPLE   METHOD                                       *   #   METHOD REFERENCE
NUMBER NUMBER                     TYPE     DESCRIPTION
---------------------------------------------------------------------------------------
 246   39306   O P'-DDT           SEDIMENT DUAL COL. -ELECTRON CAPTURE-GC              YES YES ALT. TEST
---------------------------------------------------------------------------------------

         PERFORMANCE AUDIT                    AUDIT FREQUENCY          CONTROL LIMITS
         (FOR TOTAL METHOD)                   (% OF ANALYSES)          SEE APP. #1 FOR CALCULATIONS
         ********************                 *****************        ***********************
         REAGENT BLANK                        5                        3          MG/KG
         DUPLICATE ANALYSES                   5                        50-150%    RELATIVE PERCENT DIFFERENCE
         SPIKED SAMPLES                       5                        50-150%    % LOSS OR GAIN OF SPIKE
         LAB. CONTROL STANDARD                                                    RELATIVE PERCENT ERROR
         REFERENCE STANDARDS                                                      RELATIVE PERCENT ERROR

            PARTIAL METHOD AUDIT       AUDIT TYPE            AUDIT FREQUENCY      CONTROL LIMITS
            ********************       **********            ***************      *************
         1. EXTRACTION EFF.            % RECOVERY            2%                   80-110%
         2. FLORISIL EFF.              % RECOVERY            2%                   80-110%
         3. SILICIC ACID EFF.          %RECOVERY             2%                   80-110%
         4.
         5.

            INSTRUMENT AUDITS          AUDIT TYPE            AUDIT FREQUENCY      CONTROL LIMITS
            *****************          **********            ***************      *************
         1. RETENTION TIME                                   EACH RUN             4% FROM AVERAGE
         2. DETECTOR SENSITIVITY       ALDRIN                EACH RUN             20%AT 200PG-DETECTOR
         3. DETECTOR RESPONSE          LINEARITY             MONTHLY              10-500 PG
         4.
         5.

APPROXIMATE DETECTION LIMIT 3 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 3 MG/KG TO 300 MG/KG

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QUALITY ASSURANCE DATA FOR P P'-DDT

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
249	39301	P P'-DDT	SEDIMENT	DUAL COL. -ELECTRON CAPTURE-GC	YES	YES	ALT. TEST

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	*****************	**************************	
REAGENT BLANK	5	3	MG/KG
DUPLICATE ANALYSES	5	50-150%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	5	50-150%	% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD			RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.	EXTRACTION EFF.	% RECOVERY	2%	80-110%
2.	FLORISIL EFF.	% RECOVERY	2%	80-110%
3.	SILICIC ACID EFF.	% RECOVERY	2%	80-110%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	20%AT 200PG-DETECTOR
3.	DETECTOR RESPONSE	LINEARITY	MONTHLY	10-500 PG
4.				
5.				

APPROXIMATE DETECTION LIMIT 3 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 3 MG/KG TO 300 MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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QUALITY ASSURANCE DATA FOR DIBUTYL PHTHALA

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
252		DIBUTYL PHTHALA	SEDIMENT	DUAL COL. -ELECTRON CAPTURE-GC	Y	Y	ALT. TEST

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	****************	**************************	
REAGENT BLANK	5	10	MG/KG
DUPLICATE ANALYSES	5	50-150%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	5	50-150%	% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD			RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.	EXTRACTION EFFICIENCY	% RECOVERY	2%	80-110%
2.	FLORISIL EFFICIENCY	% RECOVERY	2%	80-110%
3.	SILICIC ACID EFF.	% RECOVERY	2%	80-110%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	20%AT 200PG-DETECTOR
3.	DETECTOR RESPONSE	LINEARITY	MONTHLY	10-500 PG
4.				
5.				

APPROXIMATE DETECTION LIMIT 10 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 10 MG/KG TO 1000 MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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QUALITY ASSURANCE DATA FOR DIELDRIN

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	*	METHOD REFERENCE
255	39383	DIELDRIN	SEDIMENT	DUAL COL. -ELECTRON CAPTURE-GC	YES	YES	ALT. TEST

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	*****************	**************************	
REAGENT BLANK	5	2	MG/KG
DUPLICATE ANALYSES	5	50-150%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	5	50-150%	% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD			RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.	EXTRACTION EFF.	% RECOVERY	2%	80-110%
2.	FLORISIL EFF.	% RECOVERY	2%	80-110%
3.	SILICIC ACID EFF.	% RECOVERY	2%	80-110%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	20%AT 200PG-DETECTOR
3.	DETECTOR RESPONSE	LINEARITY	MONTHLY	10-500 PG
4.				
5.				

APPROXIMATE DETECTION LIMIT 2 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 2 MG/KG TO 200 MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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QUALITY ASSURANCE DATA FOR ENDOSULFAN I

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
258		ENDOSULFAN I	SEDIMENT	DUAL COL. -ELECTRON CAPTURE-GC	Y	Y	ALT. TEST

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	*****************	**************************	
REAGENT BLANK	5	2	MG/KG
DUPLICATE ANALYSES	5	50-150%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	5	50-150%	% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD			RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	**************	**************
1.	EXTRACTION EFFICIENCY	% RECOVERY	2%	80-110%
2.	FLORISIL EFFICIENCY	% RECOVERY	2%	80-110%
3.	SILICIC ACID EFF.	% RECOVERY	2%	80-110%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	20%AT 200PG-DETECTOR
3.	DETECTOR RESPONSE	LINEARITY	MONTHLY	10-550 PG
4.				
5.				

APPROXIMATE DETECTION LIMIT 2 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 2 MG/KG TO 200 MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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QUALITY ASSURANCE DATA FOR ENDOSULFAN II

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
261		ENDOSULFAN II	SEDIMENT	DUAL COL. -ELECTRON CAPTURE-GC	Y	Y	ALT. TEST

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	*****************	******************************	
REAGENT BLANK	5	2	MG/KG
DUPLICATE ANALYSES	5	50-150%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	5	50-150%	% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD			RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.	EXTRACTION EFFICIENCY	% RECOVERY	2%	80-110%
2.	FLORISIL EFFICIENCY	% RECOVERY	2%	80-110%
3.	SILICIC ACID EFF.	% RECOVERY	2%	80-110%
4.				
5.				

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	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	20%AT 200PG-DETECTOR
3.	DETECTOR RESPONSE	LINEARITY	MONTHLY	10-500 PG
4.				
5.				

APPROXIMATE DETECTION LIMIT 2 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 2 MG/KG TO 200 MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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QUALITY ASSURANCE DATA FOR ENDRIN

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
264	39393	ENDRIN	SEDIMENT	DUAL COL. -ELECTRON CAPTURE-GC	YES	YES	ALT. TEST

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	****************	**************************	
REAGENT BLANK	5	3	MG/KG
DUPLICATE ANALYSES	5	50-150%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	5	50-150%	% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD			RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	**************	**************
1.	EXTRACTION EFF.	% RECOVERY	2%	80-110%
2.	FLORISIL EFF.	% RECOVERY	2%	80-110%
3.	SILICIC ACID EFF.	% RECOVERY	2%	80-110%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	******************	**********	**************	**************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	20%AT 200PG-DETECTOR
3.	DETECTOR RESPONSE	LINEARITY	MONTHLY	10-500 PG
4.				
5.				

APPROXIMATE DETECTION LIMIT 3 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 3 MG/KG TO 300 MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
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QUALITY ASSURANCE DATA FOR ETHYLHEXYLPHTHA

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
267		ETHYLHEXYLPHTHA	SEDIMENT	DUAL COL. -ELECTRON CAPTURE-GC	Y	Y	ALT. TEST

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
*********************	******************	*****************************	
REAGENT BLANK	5	10	MG/KG
DUPLICATE ANALYSES	5	50-150%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	5	50-150%	% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD			RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	**********************	**********	***************	**************
1.	EXTRACTION EFFICIENCY	% RECOVERY	2%	80-110%
2.	FLORISIL EFFICIENCY	% RECOVERY	2%	80-110%
3.	SILICIC ACID EFF.	% RECOVERY	2%	80-110%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	******************	**********	****************	**************
1.	RETENTION TIM		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	20%AT 200PG-DETECTOR
3.	DETECTOR RESPONSE	LINEARITY	MONTHLY	10-500 PG
4.				
5.				

APPROXIMATE DETECTION LIMIT 10 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 10 MG/KG TO 1000 MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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QUALITY ASSURANCE DATA FOR GAMMA CHLORDANE

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
270		GAMMA CHLORDANE	SEDIMENT	DUAL COL. -ELECTRON CAPTURE-GC	Y	Y	ALT. TEST

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	****************	**************************	
REAGENT BLANK	5	2	MG/KG
DUPLICATE ANALYSES	5	50-150%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	5	50-150%	% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD			RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.	EXTRACTION EFFICIENCY	% RECOVERY	2%	80-110%
2.	FLORISIL EFFICIENCY	% RECOVERY	2%	80-110%
3.	SILICIC ACID EFF.	% RECOVERY	2%	80-110%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	20%AT 200PG-DETECTOR
3.	DETECTOR RESPONSE	LINEARITY	MONTHLY	10-500 PG
4.				
5.				

APPROXIMATE DETECTION LIMIT 2 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 2 MG/KG TO 200 MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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QUALITY ASSURANCE DATA FOR HEPTA-CL-EPOXID

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
	273	HEPTA-CL-EPOXID	SEDIMENT	DUAL COL. -ELECTRON CAPTURE-GC	Y	Y	ALT. TEST

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	*****************	**************************	
REAGENT BLANK	5	2	MG/KG
DUPLICATE ANALYSES	5	50-150%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	5	50-150%	% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD			RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.	EXTRACTION EFFICIENCY	% RECOVERY	2%	80-110%
2.	FLORISIL EFFICIENCY	% RECOVERY	2%	80-110%
3.	SILICIC ACID EFF.	% RECOVERY	2%	80-110%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	******************	**********	***************	**************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	20%AT 200PG-DETECTOR
3.	DETECTOR RESPONSE	LINEARITY	MONTHLY	10-500 PG
4.				
5.				

APPROXIMATE DETECTION LIMIT 2 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 2 MG/KG TO 200 MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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QUALITY ASSURANCE DATA FOR HEXA-CL-BENZENE

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
276		HEXA-CL-BENZENE	SEDIMENT	DUAL COL.-ELECTRON CAPTURE-GC	Y	Y	ALT. TEST

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	*****************	*************************	
REAGENT BLANK	5	5	MG/KG
DUPLICATE ANALYSES	5	50-150%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	5	50-150%	% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD			RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.	EXTRACTION EFFICIENCY	% RECOVERY	2%	80-110%
2.	FLORISIL EFFICIENCY	% RECOVERY	2%	80-110%
3.	SILICIC ACID EFF.	% RECOVERY	2%	80-110%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	20%AT 200PG-DETECTOR
3.	DETECTOR RESPONSE	LINEARITY	MONTHLY	10-500 PG
4.				
5.				

APPROXIMATE DETECTION LIMIT 5 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 5 MG/KG TO 100 MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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QUALITY ASSURANCE DATA FOR 2-4-IPR-ESTER

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
279		2-4-IPR-ESTER	SEDIMENT	DUAL COL. -ELECTRON CAPTURE-GC	Y	Y	ALT. TEST

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	****************	**************************	
REAGENT BLANK	5	2	MG/KG
DUPLICATE ANALYSES	5	50-150%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	5	50-150%	% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD			RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.	EXTRACTION EFFICIENCY	% RECOVERY	2%	80-110%
2.	FLORISIL EFFICIENCY	% RECOVERY	2%	80-110%
3.	SILICIC ACID EFF.	% RECOVERY	2%	80-110%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	20%AT 200PG-DETECTOR
3.	DETECTOR RESPONSE	LINEARITY	MONTHLY	10-500 PG
4.				
5.				

APPROXIMATE DETECTION LIMIT 2 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 2 MG/KG TO 200 MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977

QUALITY ASSURANCE DATA FOR ISODRIN

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
282	39433	ISODRIN	SEDIMENT	DUAL COL. -ELECTRON CAPTURE-GC	YES	YES	ALT. TEST

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
REAGENT BLANK	5	2	MG/KG
DUPLICATE ANALYSES	5	50-150%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	5	50-150%	% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD			RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
1.	EXTRACTION EFF.	% RECOVERY	2%	80-110%
2.	FLORISIL EFF.	% RECOVERY	2%	80-110%
3.	SILICIC ACID EFF.	% RECOVERY	2%	80-110%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	20%AT 200PG-DETECTOR
3.	DETECTOR RESPONSE	LINEARITY	MONTHLY	10-500 PG
4.				
5.				

APPROXIMATE DETECTION LIMIT 2 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 2 MG/KG TO 200 MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
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QUALITY ASSURANCE DATA FOR LINDANE

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
285	39783	LINDANE	SEDIMENT	DUAL COL. -ELECTRON CAPTURE-GC	YES	YES	ALT. TEST

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	*****************	**************************	
REAGENT BLANK	5	5	MG/KG
DUPLICATE ANALYSES	5	50-150%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	5	50-150%	% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD			RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	**********************	**********	***************	**************
1.	EXTRACTION EFF.	% RECOVERY	2%	80-110%
2.	FLORISIL EFF.	% RECOVERY	2%	80-110%
3.	SILICIC ACID EFF.	% RECOVERY	2%	80-110%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	20%AT 200PG-DETECTOR
3.	DETECTOR RESPONSE	LINEARITY	MONTHLY	10-500 PG
4.				
5.				

APPROXIMATE DETECTION LIMIT 5 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 5 MG/KG TO 100 MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB   6 / 30 / 1977
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QUALITY ASSURANCE DATA FOR METHOXYCLOR

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
288	39481	METHOXYCLOR	SEDIMENT	DUAL COL. -ELECTRON CAPTURE-GC	YES	YES	ALT. TEST

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	*****************	************************	
REAGENT BLANK	5	5	MG/KG
DUPLICATE ANALYSES	5	50-150%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	5	50-150%	% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD			RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	**************	*************
1.	EXTRACTION EFF	% RECOVERY	2%	80-110%
2.	FLORISIL EFF.	% RECOVERY	2%	80-110%
3.	SILICIC ACID EFF.	% RECOVERY	2%	80-110%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	*************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALRIN	EACH RUN	20%AT 200PG-DETECTOR
3.	DETECTOR RESPONSE	LINEARITY	MONTHLY	10-500 PG
4.				
5.				

APPROXIMATE DETECTION LIMIT 5 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 5 MG/KG TO 500 MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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QUALITY ASSURANCE DATA FOR MIREX

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	*	METHOD REFERENCE
291		MIREX	SEDIMENT	DUAL COL. -ELECTRON CAPTURE-GC	Y	Y	ALT. TEST

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	*****************	**************************	
REAGENT BLANK	5	5	MG/KG
DUPLICATE ANALYSES	5	50-150%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	5	50-150%	% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD			RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.	EXTRACTION EFFICIENCY	% RECOVERY	2%	80-110%
2.	FLORISIL EFFICIENCY	% RECOVERY	2%	80-110%
3.	SILICIC ACID EFF.	% RECOVERY	2%	80-110%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	20%AT 200PG-DETECTOR
3.	DETECTOR RESPONSE	LINEARITY	MONTHLY	10-500 PG
4.				
5.				

APPROXIMATE DETECTION LIMIT 5 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 5 MG/KG TO 500 MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977

QUALITY ASSURANCE DATA FOR TETRAFIDON

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	*	METHOD REFERENCE
294		TETRAFIDON	SEDIMENT	DUAL COL. -ELECTRON CAPTURE-GC	Y	Y	ALT. TEST

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	****************	**************************	
REAGENT BLANK	5	10	MG/KG
DUPLICATE ANALYSES	5	50-150%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	5	50-150%	% LOSS OR GAIN OF SPIKE
LAB CONTROL STANDARD			RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.	EXTRACTION EFFICIENCY	% RECOVERY	2%	80-110%
2.	FLORISIL EFFICIENCY	% RECOVERY	2%	80-110%
3.	SILICIC ACID EFF.	% RECOVERY	2%	80-110%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	******************	**********	***************	**************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	20%AT 200PG-DETECTOR
3.	DETECTOR RESPONSE	LINEARITY	MONTHLY	10-500 PG
4.				
5.				

APPROXIMATE DETECTION LIMIT 10 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 10 MG/KG TO 1000 MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977

QUALITY ASSURANCE DATA FOR TREFLAN

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
297		TREFLAN	SEDIMENT	DUAL COL. -ELECTRON CAPTURE-GC	Y	Y	ALT. TEST

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
REAGENT BLANK	5	5	MG/KG
DUPLICATE ANALYSES	5	50-150%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	5	50-150%	% LOSS OR GAIN OF SPIKE
LAB CONTROL STANDARD			RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
1.	EXTRACTION EFFICIENCY	% RECOVERY	2%	80-110%
2.	FLORISIL EFFICIENCY	% RECOVERY	2%	80-110%
3.	SILICIC ACID EFF.	% RECOVERY	2%	80-110%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	20%AT 200PG-DETECTOR
3.	DETECTOR RESPONSE	LINEARITY	MONTHLY	10-500 PG
4.				
5.				

APPROXIMATE DETECTION LIMIT 5 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 5 MG/KG TO 100 MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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QUALITY ASSURANCE DATA FOR ZYTRON

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTICN	*	#	METHOD REFERENCE
300		ZYTRON	SEDIMENT	DUAL COL. -ELECTRON CAPTURE-GC	Y	Y	ALT. TEST

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	*****************	**************************	
REAGENT BLANK	5	5	MG/KG
DUPLICATE ANALYSES	5	50-150%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	5	50-150%	% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD			RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.	EXTRACTION EFFICIENCY	% RECOVERY	2%	80-110%
2.	FLORISIL EFFICIENCY	% RECOVERY	2%	80-110%
3.	SILICIC ACID EFF.	% RECOVERY	2%	80-110%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.	RETENTION TIME		EACH RUN	4% FROM AVERAGE
2.	DETECTOR SENSITIVITY	ALDRIN	EACH RUN	20%AT 200PG-DETECTOR
3.	DETECTOR RESPONSE	LINEARITY	MONTHLY	10-500 PG
4.				
5.				

APPROXIMATE DETECTION LIMIT 5 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 5 MG/KG TO 100 MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

J. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
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QUALITY ASSURANCE DATA FOR ALK. TOTAL

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
303	00410	ALK. TOTAL	WATER	FISHER TITRALYZER-SEC403-REF. 1			1-SEC. 403

PERFORMANCE AUDIT (FOR TOTAL METHOD) *******************	AUDIT FREQUENCY (% OF ANALYSES) *****************	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS **************************	
REAGENT BLANK			MG/L
DUPLICATE ANALYSES	DAILY	2	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	DAILY	3	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	SEMIANNUALLY	3	RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT ********************	AUDIT TYPE **********	AUDIT FREQUENCY ***************	CONTROL LIMITS **************
1.	LAB. CONTROL STD.	CONC=140 MG/L	DAILY	3. 5%REL. % ERRO
2.	LAB. CONTROL STD.	CONC=212 MG/L	DAILY	3%REL. % ERROR
3.				
4.				
5.				

	INSTRUMENT AUDITS *****************	AUDIT TYPE **********	AUDIT FREQUENCY ***************	CONTROL LIMITS **************
1.				
2.				
3.				
4.				
5.				

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APPROXIMATE DETECTION LIMIT 5 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 5 MG/L TO MG/L

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U. S. EPA CENTRAL REGION 5 LAB                    6 / 30 / 1977
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                    QUALITY ASSURANCE DATA FOR              ALK

METHOD STORET  PARAMETER          SAMPLE   METHOD                                                  *   #   METHOD REFERENCE
NUMBER NUMBER                     TYPE     DESCRIPTION

 306   00410   ALK                WATER    MANUAL METHOD BY TITRATION                                      REF1-P04

          PERFORMANCE AUDIT                    AUDIT FREQUENCY              CONTROL LIMITS
          (FOR TOTAL METHOD)                   (% OF ANALYSES)              SEE APP. #1 FOR CALCULATIONS
          ******************                   ****************             *************************
          REAGENT BLANK                                                                 MG/L
          DUPLICATE ANALYSES                   DAILY                        2           RELATIVE PERCENT DIFFERENCE
          SPIKED SAMPLES                                                                % LOSS OR GAIN OF SPIKE
          LAB CONTROL STANDARD                 DAILY                        3           RELATIVE PERCENT ERROR
          REFERENCE STANDARDS                  SEMIANNUALLY                 3           RELATIVE PERCENT ERROR

             PARTIAL METHOD AUDIT       AUDIT TYPE              AUDIT FREQUENCY         CONTROL LIMITS
             ********************       **********              ***************         **************
          1. LAB CONTROL STD.           CONC=140 MG/L           DAILY                   3.5%REL % ERROR
          2. LAB CONTROL STD.           CONC=212 MG/L           DAILY                   3%REL % ERROR
          3.
          4.
          5.

             INSTRUMENT AUDITS          AUDIT TYPE              AUDIT FREQUENCY         CONTROL LIMITS
             *****************          **********              ***************         **************
          1.
          2.
          3.
          4.
          5.

APPROXIMATE DETECTION LIMIT 5 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 5 MG/L TO  MG/L

          PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
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QUALITY ASSURANCE DATA FOR ALK.

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
309		ALK.	SEDIMENT	SUSPEND & ANALYZE BY TITRATION			

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS
********************	****************	**************************
REAGENT BLANK		
DUPLICATE ANALYSES		RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES		% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD		RELATIVE PERCENT ERROR
REFERENCE STANDARDS		RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.				
2.				
3.				
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.				
2.				
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM TO

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U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
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QUALITY ASSURANCE DATA FOR AMMONIA-TOT.

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
312	00610	AMMONIA-TOT.	WATER	NITROPRUSSIDE			9-154-71W

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	*****************	**************************	
REAGENT BLANK	HOURLY	0.03	MG/L
DUPLICATE ANALYSES	HOURLY	3% OF VALUE	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	HOURLY	3	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	SEMIANNUALLY	3	RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.	LAB CONTROL STD.	CONC=5.00 MG/L	HOURLY	4.92-5.06
2.	LAB CONTROL STD.	CONC=4.00 MG/L	HOURLY	3.92-4.03
3.				
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.	STD. CAL.	CHECK SETTING	DAILY	2.00-2.20
2.				
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT 0.03 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0.03 MG/L TO 10 MG/L

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U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
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QUALITY ASSURANCE DATA FOR AMMONIA

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	*	METHOD REFERENCE
315	00610	AMMONIA	WATER	LAKE LEVEL-TECHII-NITROPRUSSIDE			CRL PROC

PERFORMANCE AUDIT (FOR TOTAL METHOD) ********************	AUDIT FREQUENCY (% OF ANALYSES) *****************	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS ***************************
REAGENT BLANK		MG/L
DUPLICATE ANALYSES		RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES		% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD		RELATIVE PERCENT ERROR
REFERENCE STANDARDS		RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT ********************	AUDIT TYPE **********	AUDIT FREQUENCY ***************	CONTROL LIMITS **************
1.				
2.				
3.				
4.				
5.				

	INSTRUMENT AUDITS *****************	AUDIT TYPE **********	AUDIT FREQUENCY ***************	CONTROL LIMITS **************
1.				
2.				
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT 0.002 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM .002 MG/L TO .050 MG/L

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U. S. EPA CENTRAL REGION 5 LAB                    6 / 30 / 1977
                         QUALITY ASSURANCE DATA FOR          AMMONIA
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METHOD STORET PARAMETER              SAMPLE   METHOD                      *  #  METHOD REFERENCE
NUMBER NUMBER                        TYPE     DESCRIPTION
--------------------------------------------------------------------------------
 318   00610  AMMONIA
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         PERFORMANCE AUDIT                    AUDIT FREQUENCY          CONTROL LIMITS
         (FOR TOTAL METHOD)                   (% OF ANALYSES)          SEE APP. #1 FOR CALCULATIONS
         *******************                  *****************        *************************
         REAGENT BLANK
         DUPLICATE ANALYSES                                                      RELATIVE PERCENT DIFFERENCE
         SPIKED SAMPLES                                                          % LOSS OR GAIN OF SPIKE
         LAB. CONTROL STANDARD                                                   RELATIVE PERCENT ERROR
         REFERENCE STANDARDS                                                     RELATIVE PERCENT ERROR

              PARTIAL METHOD AUDIT       AUDIT TYPE          AUDIT FREQUENCY       CONTROL LIMITS
              ********************       **********          ***************       **************
         1.
         2.
         3.
         4.
         5.

              INSTRUMENT AUDITS          AUDIT TYPE          AUDIT FREQUENCY       CONTROL LIMITS
              *****************          **********          ***************       **************
         1.
         2.
         3.
         4.
         5.

APPROXIMATE DETECTION LIMIT

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM   TO

         PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB                       6 / 30 / 1977
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                      QUALITY ASSURANCE DATA FOR                     AMMONIA
METHOD STORET PARAMETER
NUMBER NUMBER                       SAMPLE   METHOD
                                    TYPE     DESCRIPTION                         *   *   METHOD REFERENCE
 321   00610  AMMONIA

          PERFORMANCE AUDIT
          (FOR TOTAL METHOD)                 AUDIT FREQUENCY
          ********************               (% OF ANALYSES)        CONTROL LIMITS
          REAGENT BLANK                      ****************       SEE APP. #1 FOR CALCULATIONS
          DUPLICATE ANALYSES                                        *************************
          SPIKED SAMPLES
          LAB. CONTROL STANDARD                                             RELATIVE PERCENT DIFFERENCE
          REFERENCE STANDARDS                                               % LOSS OR GAIN OF SPIKE
                                                                            RELATIVE PERCENT ERROR
                                                                            RELATIVE PERCENT ERROR
             PARTIAL METHOD AUDIT    AUDIT TYPE
             ********************    **********       AUDIT FREQUENCY       CONTROL LIMITS
          1.                                          ***************       **************
          2.
          3.
          4.
          5.

             INSTRUMENT AUDITS       AUDIT TYPE
             *****************       **********       AUDIT FREQUENCY       CONTROL LIMITS
          1.                                          ***************       **************
          2.
          3.
          4.
          5.
APPROXIMATE DETECTION LIMIT

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM   TO

      PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
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QUALITY ASSURANCE DATA FOR AMMONIA-SED

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	*	METHOD REFERENCE
324	00011	AMMONIA-SED	SEDIMENT	NITROPRUSSIDE			9-154-71W

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
*********************	*****************	**************************	
REAGENT BLANK	HOURLY	0-0.03	MG/KG
DUPLICATE ANALYSES			RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	HOURLY	3%	RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*********************	**********	***************	**************
1.	LAB CONTROL STD.	CONC=4.00 MG/L	HOURLY	3% REL. % ERROR
2.	LAB CONTROL STD.	CONC=5.00 MG/L	HOURLY	2.5% REL. % ERROR
3.				
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.				
2.				
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT 0.03 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0.03 MG/KG TO 10.00 MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977

QUALITY ASSURANCE DATA FOR BOD-5 DAY

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
327	00310	BOD-5 DAY	WATER	MICRO MODIFICATION REF. 1SEC507			ALT. TEST

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	****************	*************************	
REAGENT BLANK	DAILY	0.9	MG/L
DUPLICATE ANALYSES	DAILY	10%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	DAILY	20%	RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.	LAB CONTROL STD.	160 MG/L	DAILY	20% REL. % ERROR
2.	LAB CONTROL STD.	220 MG/L	DAILY	20% REL. % ERROR
3.				
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	*************
1.	TEMPERATURE CONTROL	RECORDER TRACING	DAILY	19.5-20.5 C.
2.				
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT 2 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 2 MG/L TO 6 MG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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U. S. EPA CENTRAL REGION 5 LAB                    6 / 30 / 1977
9
                     QUALITY ASSURANCE DATA FOR                  BOD
------------------------------------------------------------------------------
                                                            *  *  METHOD REFERENCE
METHOD STORET  PARAMETER        SAMPLE  METHOD
NUMBER NUMBER                   TYPE    DESCRIPTION
------------------------------------------------------------------------------
                                                                  REF. 2-P550
 330           BOD              WATER   STANDARD METHOD
------------------------------------------------------------------------------

        PERFORMANCE AUDIT           AUDIT FREQUENCY       CONTROL LIMITS
        (FOR TOTAL METHOD)          (% OF ANALYSES)       SEE APP. #1 FOR CALCULATIONS
        ********************        ******************    ****************************
        REAGENT BLANK
        DUPLICATE ANALYSES                                           RELATIVE PERCENT DIFFERENCE
        SPIKED SAMPLES                                               % LOSS OR GAIN OF SPIKE
        LAB. CONTROL STANDARD                                        RELATIVE PERCENT ERROR
        REFERENCE STANDARDS                                          RELATIVE PERCENT ERROR

           PARTIAL METHOD AUDIT    AUDIT TYPE       AUDIT FREQUENCY    CONTROL LIMITS
           ********************    **********       ***************    **************
      1.
      2.
      3.
      4.
      5.
           INSTRUMENT AUDITS       AUDIT TYPE       AUDIT FREQUENCY    CONTROL LIMITS
           *****************       **********       ***************    **************
      1.
      2.
      3.
      4.
      5.
APPROXIMATE DETECTION LIMIT

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM   TO

      PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB                    6 / 30 / 1977
                   QUALITY ASSURANCE DATA FOR                CHLORIDE-TOT
----------------------------------------------------------------------------------
METHOD STORET  PARAMETER           SAMPLE   METHOD                       *  #  METHOD REFERENCE
NUMBER NUMBER                      TYPE     DESCRIPTION
----------------------------------------------------------------------------------
 333   00940   CHLORIDE-TOT.       WATER    FERRICYANIDE                         9-99-70W
----------------------------------------------------------------------------------

      PERFORMANCE AUDIT                  AUDIT FREQUENCY            CONTROL LIMITS
      (FOR TOTAL METHOD)                 (% OF ANALYSES)            SEE APP. #1 FOR CALCULATIONS
      ********************               *****************          ****************************
      REAGENT BLANK                      EVERY 20 SAMPLES           0-2 MG/L        MG/L
      DUPLICATE ANALYSES                 EVERY 20 SAMPLES           2               RELATIVE PERCENT DIFFERENCE
      SPIKED SAMPLES                                                                % LOSS OR GAIN OF SPIKE
      LAB. CONTROL STANDARD              EVERY 20 SAMPLES           3.5             RELATIVE PERCENT ERROR
      REFERENCE STANDARDS                                                           RELATIVE PERCENT ERROR

         PARTIAL METHOD AUDIT        AUDIT TYPE           AUDIT FREQUENCY           CONTROL LIMITS
         ********************        **********           ***************           **************
      1. LAB CONTROL STD.            CONC=143 MG/L        HOURLY                    3.5% REL. % ERROR
      2. LAB CONTROL STD.            CONC=117 MG/L        HOURLY                    4.5% REL. % ERROR
      3.
      4.
      5.

         INSTRUMENT AUDITS           AUDIT TYPE           AUDIT FREQUENCY           CONTROL LIMITS
         *****************           **********           ***************           **************
      1. STD. CAL.                                        DAILY
      2.
      3.
      4.
      5.

APPROXIMATE DETECTION LIMIT 2 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 2 MG/L TO 200 MG/L

      PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
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QUALITY ASSURANCE DATA FOR CHLORIDE

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	$	METHOD REFERENCE
336	00940	CHLORIDE	WATER	AUTOMATEDFERRICYANIDE	YES	YES	REF. 9-99-7

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. 01 FOR CALCULATIONS	
********************	****************	**************************	
REAGENT BLANK	EVERY 20 SAMPLES	0.1	MG/L
DUPLICATE ANALYSES	EVERY 20 SAMPLES	5	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	QUARTERLY	5	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	QUARTERLY		RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.	LAB CONTROL STD.	APPROX. CONC 15	HOURLY	5% RCL. ERROR
2.	LAB CONTROL STD.	APPROX. CONC 12	HOURLY	5% RCL. ERROR
3.				
4.				
5.				

142<

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.				
2.				
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT 0.2 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0.2 MG/L TO 20 MG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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U. S. EPA CENTRAL REGION 5 LAB                    6 / 30 / 1977
                    QUALITY ASSURANCE DATA FOR              CHROMIUM VI-TOT
---------------------------------------------------------------------------------------
METHOD STORET  PARAMETER          SAMPLE   METHOD                              *   *   METHOD REFERENCE
NUMBER NUMBER                     TYPE     DESCRIPTION
---------------------------------------------------------------------------------------
 339   01032   CHROMIUM VI-TOT    WATER    DIPHENYLCARBAZIDE COLORIMETRIC                  1-GEC307B
---------------------------------------------------------------------------------------

       PERFORMANCE AUDIT                   AUDIT FREQUENCY          CONTROL LIMITS
       (FOR TOTAL METHOD)                  (% OF ANALYSES)          SEE APP. #1 FOR CALCULATIONS
       ********************                *****************        ***************************
       REAGENT BLANK                       DAILY IF CR+6 PRESEN     0.010     MG/L
       DUPLICATE ANALYSES                  DAILY IF CR+6 PRESEN     0.02      RELATIVE PERCENT DIFFERENCE
       SPIKED SAMPLES                                                         % LOSS OR GAIN OF SPIKE
       LAB. CONTROL STANDARD                                                  RELATIVE PERCENT ERROR
       REFERENCE STANDARDS                                                    RELATIVE PERCENT ERROR

          PARTIAL METHOD AUDIT     AUDIT TYPE          AUDIT FREQUENCY      CONTROL LIMITS
          ********************     **********          ***************      **************
       1.
       2.
       3.
       4.
       5.

          INSTRUMENT AUDITS        AUDIT TYPE          AUDIT FREQUENCY      CONTROL LIMITS.
          *****************        **********          ***************      **************
       1.
       2.
       3.
       4.
       5.

APPROXIMATE DETECTION LIMIT 0.010 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0.01 MG/L TO 0.200 MG/L

       PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977

QUALITY ASSURANCE DATA FOR COD-TOTAL

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
342	00340	COD-TOTAL	WATER	MICRO			REF. 11

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (X OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	*****************	**************************	
REAGENT BLANK	HOURLY	0-3	MG/L
DUPLICATE ANALYSES	HOURLY	6	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			X LOSS OR GAIN OF SPIKE
LAB CONTROL STANDARD	HOURLY	6	RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	***************
1.	LAB CONTROL STD.	CONC=200 MG/L	HOURLY	5X REL. X ERROR
2.	LAB CONTROL STD.	CONC=150 MG/L	HOURLY	5X REL. X ERROR
3.				
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.				
2.				
3.				
4.				
5.				

144<

APPROXIMATE DETECTION LIMIT 3 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 3 MG/L TO 900 MG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-3370

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U. S. EPA CENTRAL REGION 5 LAB                    6 / 30 / 1977
9
                     QUALITY ASSURANCE DATA FOR              COD

METHOD STORET  PARAMETER          SAMPLE  METHOD                                          *    #    METHOD REFERENCE
NUMBER NUMBER                     TYPE    DESCRIPTION

 345   00335   COD                WATER   AUTOMATED COLOREMETRIC-LOW LEVEL               YES  YES  REF. 11

          PERFORMANCE AUDIT                 AUDIT FREQUENCY           CONTROL LIMITS
          (FOR TOTAL METHOD)                (% OF ANALYSES)           SEE APP. #1 FOR CALCULATIONS
          **********************            *****************         ***************************
          REAGENT BLANK                     5                         0.5
          DUPLICATE ANALYSES                10                        10            RELATIVE PERCENT DIFFERENCE
          SPIKED SAMPLES                                                            % LOSS OR GAIN OF SPIKE
          LAB. CONTROL STANDARD             5                         10            RELATIVE PERCENT ERROR
          REFERENCE STANDARDS               QUARTERLY                 10            RELATIVE PERCENT ERROR

               PARTIAL METHOD AUDIT     AUDIT TYPE          AUDIT FREQUENCY     CONTROL LIMITS
               ********************     **********          ***************     **************
          1.
          2.
          3.
          4.
          5.

               INSTRUMENT AUDITS        AUDIT TYPE          AUDIT FREQUENCY     CONTROL LIMITS
               *****************        **********          ***************     **************
145<      1.
          2.
          3.
          4.
          5.

APPROXIMATE DETECTION LIMIT

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM    TO

          PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL  REGION 5 LAB                6 / 30 / 1977
 9
                   QUALITY  ASSURANCE  DATA  FOR        COD

                                                          *     *    METHOD REFERENCE
METHOD STORET  PARAMETER         SAMPLE   METHOD
NUMBER NUMBER                    TYPE     DESCRIPTION
  348   00340   COD              WATER    FERROUS AMMONIUM SULFATE TITRATION      NO   YES  REF. 1-PAGE

      PERFORMANCE AUDIT                  AUDIT FREQUENCY         CONTROL LIMITS
      (FOR TOTAL METHOD)                 (% OF ANALYSES)         SEE APP. #1 FOR CALCULATIONS
      *******************                ****************        *************************
      REAGENT BLANK                      5                       5          MG/L
      DUPLICATE ANALYSES                 5                       15         RELATIVE PERCENT DIFFERENCE
      SPIKED SAMPLES                                                        % LOSS OR GAIN OF SPIKE
      LAB CONTROL STANDARD                                                  RELATIVE PERCENT ERROR
      REFERENCE STANDARDS                                                   RELATIVE PERCENT ERROR

         PARTIAL METHOD AUDIT       AUDIT TYPE          AUDIT FREQUENCY     CONTROL LIMITS
         *******************        **********          ***************     **************
      1.
      2.
      3.
      4.
      5.

         INSTRUMENT AUDITS          AUDIT TYPE          AUDIT FREQUENCY     CONTROL LIMITS
         *****************          **********          ***************     **************
      1.
      2.
      3.
      4.
      5.

APPROXIMATE DETECTION LIMIT 5 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 5 MG/L TO 500 MG/L

      PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB                    6 / 30 / 1977
9                   QUALITY ASSURANCE DATA FOR              COD

METHOD STORET  PARAMETER          SAMPLE    METHOD                                    *   *   METHOD REFERENCE
NUMBER NUMBER                     TYPE      DESCRIPTION

 381   00339   COD                SEDIMENT  MICRO DIGESTION                                   ALT. TEXT

        PERFORMANCE AUDIT                  AUDIT FREQUENCY            CONTROL LIMITS
        (FOR TOTAL METHOD)                 (% OF ANALYSES)            SEE APP. #1 FOR CALCULATIONS
        ********************               *****************          **************************
        REAGENT BLANK                      HOURLY                     0-3          MG/L
        DUPLICATE ANALYSES                                                         RELATIVE PERCENT DIFFERENCE
        SPIKED SAMPLES                                                             % LOSS OR GAIN OF SPIKE
        LAB CONTROL STANDARD               HOURLY                     6            RELATIVE PERCENT ERROR
        REFERENCE STANDARDS                                                        RELATIVE PERCENT ERROR

            PARTIAL METHOD AUDIT       AUDIT TYPE              AUDIT FREQUENCY      CONTROL LIMITS
            ********************       **********              ***************      **************
        1.  LAB CONTROL STD.           CONC=200 MG/L           HOURLY               6% REL % ERROR
        2.  LAB CONTROL STD.           CONC=200 MG/L           HOURLY               5% REL % ERROR
        3.
        4.
        5.

            INSTRUMENT AUDITS          AUDIT TYPE              AUDIT FREQUENCY      CONTROL LIMITS
            *****************          **********              ***************      **************
        1.  UNITS CHANGED TO           MG/KG BASED ON          PERCENT SOLIDS
        2.
        3.
        4.
        5.

APPROXIMATE DETECTION LIMIT 3 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 3 MG/L TO 900 MG/L

     PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB             .     4 / 30 / 1977
                  QUALITY ASSURANCE DATA FOR                 CONDUCTIVITY
--------------------------------------------------------------------------------
METHOD STORET  PARAMETER           SAMPLE   METHOD                 .   .  METHOD REFERENCE
NUMBER NUMBER                      TYPE     DESCRIPTION
--------------------------------------------------------------------------------
 334   00095   CONDUCTIVITY        WATER                                 1-SEC.205
--------------------------------------------------------------------------------

      PERFORMANCE AUDIT               AUDIT FREQUENCY           CONTROL LIMITS
      (FOR TOTAL METHOD)              (% OF ANALYSES)           SEE APP. 81 FOR CALCULATIONS
      ********************            *****************         *************************
      REAGENT BLANK                                                       US
      DUPLICATE ANALYSES              EVERY DAY                 WITHIN 3%  RELATIVE PERCENT DIFFERENCE
      SPIKED SAMPLES                                                       % LOSS OR GAIN OF SPIKE
      LAB CONTROL STANDARD            EVERY DAY                 2%         RELATIVE PERCENT ERROR
      REFERENCE STANDARDS                                                  RELATIVE PERCENT ERROR

         PARTIAL METHOD AUDIT      AUDIT TYPE          AUDIT FREQUENCY      CONTROL LIMITS
         ********************      **********          ***************      **************
     1.  LAB CONTROL STD.          CONC=400 US         DAILY                2% REL. % ERROR
     2.  LAB CONTROL STD.          CONC=282 US         DAILY                3% REL. % ERROR
     3.
     4.
     5.

         INSTRUMENT AUDITS         AUDIT TYPE          AUDIT FREQUENCY      CONTROL LIMITS
         *****************         **********          ***************      **************
     1.  TEMPERATURE               CHECK               DAILY                24-26 DEGREE C
     2.
     3.
     4.
     5.

APPROXIMATE DETECTION LIMIT 0.1 US

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0.1 US TO  US

      PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977

QUALITY ASSURANCE DATA FOR CYANIDE-TOT.

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	*	METHOD REFERENCE
357	00720	CYANIDE-TOT.	WATER	MAN. DIST. &AUTO. COLORIMETRY-BARBITURIC ACID			9-315-74W

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	*****************	*************************	
REAGENT BLANK	EVERY 20 SAMPLES	0-0.005	MG/L
DUPLICATE ANALYSES	EVERY 40 SAMPLES	+0.010	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	EVERY 40 SAMPLES	5%	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	QUARTERLY	5%	RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	*************
1.	LAB CONTROL STD.	CONC=100	DAILY	5% REL. % ERROR
2.	LAB CONTROL STD.	CONC=160	DAILY	5% REL. % ERROR
3.				
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	****************	**********	***************	*************
1.				
2.				
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT 0.005 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM .005 MG/L TO .200 MG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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U. S. EPA CENTRAL REGION 5 LAB            6 / 30 / 1977
              QUALITY ASSURANCE DATA FOR          CYANIDE

METHOD STORET  PARAMETER           SAMPLE   METHOD                                *   #   METHOD REFERENCE
NUMBER NUMBER                      TYPE     DESCRIPTION

 360   00720   CYANIDE             WATER    STANDARD                             NO  YES  REF. 1-PAGE

         PERFORMANCE AUDIT               AUDIT FREQUENCY          CONTROL LIMITS
         (FOR TOTAL METHOD)              (% OF ANALYSES)          SEE APP. #1 FOR CALCULATIONS
         ********************            *****************        *************************
         REAGENT BLANK                   5                        5 UG/L
         DUPLICATE ANALYSES              10                       10        RELATIVE PERCENT DIFFERENCE
         SPIKED SAMPLES                                                     % LOSS OR GAIN OF SPIKE
         LAB CONTROL STANDARD                                               RELATIVE PERCENT ERROR
         REFERENCE STANDARDS                                                RELATIVE PERCENT ERROR

             PARTIAL METHOD AUDIT   AUDIT TYPE        AUDIT FREQUENCY      CONTROL LIMITS
             ********************   **********        ***************      **************
         1.
         2.
         3.
         4.
         5.

             INSTRUMENT AUDITS      AUDIT TYPE        AUDIT FREQUENCY      CONTROL LIMITS
             *****************      **********        ***************      **************
         1.
         2.
         3.
         4.
         5.

APPROXIMATE DETECTION LIMIT 5

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 5  TO 100

         PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL  REGION 5 LAB              6 / 30 / 1977
                   QUALITY ASSURANCE DATA FOR              CYANIDE

                                                              *   6   METHOD REFERENCE
METHOD STORET  PARAMETER           SAMPLE  METHOD
NUMBER NUMBER                      TYPE    DESCRIPTION

 343   00720   CYANIDE             WATER   SPECIFIC ION ELECTRODE       NO   YES  REF. 2-PAGE

        PERFORMANCE AUDIT               AUDIT FREQUENCY        CONTROL LIMITS
        (FOR TOTAL METHOD)              (% OF ANALYSES)        SEE APP. 01 FOR CALCULATIONS
        ********************            *****************      ***************************
        REAGENT BLANK                   5                      0.05 MG/L
        DUPLICATE ANALYSES              10                     10        RELATIVE PERCENT DIFFERENCE
        SPIKED SAMPLES                                                   % LOSS OR GAIN OF SPIKE
        LAB. CONTROL STANDARD                                            RELATIVE PERCENT ERROR
        REFERENCE STANDARDS                                              RELATIVE PERCENT ERROR

          PARTIAL METHOD AUDIT     AUDIT TYPE           AUDIT FREQUENCY      CONTROL LIMITS
          ********************     **********           ***************      *************
        1.
        2.
        3.
        4.
        5.

          INSTRUMENT AUDITS        AUDIT TYPE           AUDIT FREQUENCY      CONTROL LIMITS
          *****************        **********           ***************      *************
151<    1.
        2.
        3.
        4.
        5.

APPROXIMATE DETECTION LIMIT

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM    TO

     PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB                    6 / 30 / 1977
                         QUALITY ASSURANCE DATA FOR               CYANIDE
--------------------------------------------------------------------------------
METHOD STORET  PARAMETER          SAMPLE    METHOD                          *  *  METHOD REFERENCE
NUMBER NUMBER                     TYPE      DESCRIPTION
--------------------------------------------------------------------------------
 344   00721   CYANIDE            SEDIMENT  DISTILLATION & METHOD 357              REF. 1-PAO
--------------------------------------------------------------------------------

          PERFORMANCE AUDIT             AUDIT FREQUENCY         CONTROL LIMITS
          (FOR TOTAL METHOD)            (% OF ANALYSES)         SEE APP. 01 FOR CALCULATIONS
          *******************           ****************        *************************
          REAGENT BLANK                 5                       5 MG/L
          DUPLICATE ANALYSES            5                       20          RELATIVE PERCENT DIFFERENCE
          SPIKED SAMPLES                                                    % LOSS OR GAIN OF SPIKE
          LAB CONTROL STANDARD                                              RELATIVE PERCENT ERROR
          REFERENCE STANDARDS                                               RELATIVE PERCENT ERROR

             PARTIAL METHOD AUDIT    AUDIT TYPE           AUDIT FREQUENCY     CONTROL LIMITS
             ********************    **********           ***************     **************
          1. UNITS CHANGED           TO MG/KG             BASED ON            PERCENT SOLIDS
          2.
          3.
          4.
          5.

             INSTRUMENT AUDITS       AUDIT TYPE           AUDIT FREQUENCY     CONTROL LIMITS
             *****************       **********           ***************     **************
          1.
          2.
          3.
          4.
          5.
APPROXIMATE DETECTION LIMIT

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM   TO

          PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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J. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977

QUALITY ASSURANCE DATA FOR CYANIDE

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
369	00721	CYANIDE	SEDIMENT	DISTILLATION-SPECIFIC ION ELECTRODE	NO	YES	REF. 2 PAGE

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	******************	******************************	
REAGENT BLANK	5	0.05 MG/L	
DUPLICATE ANALYSES	5	20	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD			RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*********************	**********	***************	**************
1.				
2.				
3.				
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	******************	**********	***************	**************
1.	UNITS CHANGED TO	MG/KG	BASED ON %	SOLIDS
2.				
3.				
4.				
5.				

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APPROXIMATE DETECTION LIMIT

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0.05 TO 100 MG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977

QUALITY ASSURANCE DATA FOR FLUORIDE-TOT.

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	* * METHOD REFERENCE
372	00951	FLUORIDE-TOT.	WATER	DISTILLATION & AUTO. SELECTIVE ION ELECTRODE	9-380-75E

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	****************	**************************	
REAGENT BLANK	EVERY 20 SAMPLES	0.2	MG/L
DUPLICATE ANALYSES	EVERY 40 SAMPLES	0.3	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB CONTROL STANDARD	EVERY 40 SAMPLES	10%	RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	***************
1.	CONTROL STD.	CONC=1.0 MG/L	HOURLY	10% REL. % ERROR
2.	CONTROL STD.	CONC=0.6 MG/L	HOURLY	15% REL. % ERROR
3.				
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	***************
1.				
2.				
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT 0.1 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0.1 MG/L TO 10 MG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-6370

U. S. EPA CENTRAL REGION 5 LAB , 6 / 30 / 1977

QUALITY ASSURANCE DATA FOR FLUORIDE

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	*	METHOD REFERENCE
375	00951	FLUORIDE	WATER	TECHNICON WITHOUT DISTILLATION			9-380-75W

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PERFORMANCE AUDIT              AUDIT FREQUENCY         CONTROL LIMITS
(FOR TOTAL METHOD)             (% OF ANALYSES)         SEE APP.#1 FOR CALCULATIONS
**********************         ***************         *************************
REAGENT BLANK                                                   RELATIVE PERCENT DIFFERENCE
DUPLICATE ANALYSES                                              % LOSS OR GAIN OF SPIKE
SPIKED SAMPLES                                                  RELATIVE PERCENT ERROR
LAB CONTROL STANDARD                                            RELATIVE PERCENT ERROR
REFERENCE STANDARDS

     PARTIAL METHOD AUDIT      AUDIT TYPE          AUDIT FREQUENCY     CONTROL LIMITS
     ********************      **********          ***************     **************
1.
2.
3.
4.
5.

     INSTRUMENT AUDITS         AUDIT TYPE          AUDIT FREQUENCY     CONTROL LIMITS
     *****************         **********          ***************     **************
1.
2.
3.
4.
5.
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APPROXIMATE DETECTION LIMIT

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM TO

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
9

QUALITY ASSURANCE DATA FOR FLUORIDE

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	* #	METHOD REFERENCE
370	00951	FLUORIDE	WATER	DISTILL. FOLLOWED BY MANUAL SPEC. ION ELECTRODE		REF2-P0372

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS
********************	*****************	**************************
REAGENT BLANK		
DUPLICATE ANALYSES		RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES		% LOSS OR GAIN OF SPIKE
LAB CONTROL STANDARD		RELATIVE PERCENT ERROR
REFERENCE STANDARDS		RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.				
2.				
3.				
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.				
2.				
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM TO

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
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QUALITY ASSURANCE DATA FOR FLUORIDE

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
381		FLUORIDE	SEDIMENT	MANUAL DISTILLATION THEN METHOD 375			9-380-75WE

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	******************	**************************	
REAGENT BLANK	EVERY 20 SAMPLES	0.2	MG/L
DUPLICATE ANALYSES	EVERY 40 SAMPLES	0.3	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB CONTROL STANDARD	EVERY 40 SAMPLES	10%	RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.	CONTROL STD.	CONC=1.0 MG/L	HOURLY	10% REL. % ERROR
2.	CONTROL STD.	CONC=0.6 MG/L	HOURLY	15% REL. % ERROR
3.				
4.				
5.				

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	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.				
2.				
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT 0.1 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0.1 MG/L TO 10 MG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977

QUALITY ASSURANCE DATA FOR FLUORIDE

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	* * METHOD REFERENCE
	384	FLUORIDE	SEDIMENT	MANUAL DISTILL. THEN AUTO. SPECIFIC ION ELECTROD	NRP1-P045

PERFORMANCE AUDIT (FOR TOTAL METHOD) **************************	AUDIT FREQUENCY (% OF ANALYSES) ******************	CONTROL LIMITS SEE APP. 91 FOR CALCULATIONS ***************************
REAGENT BLANK		RELATIVE PERCENT DIFFERENCE
DUPLICATE ANALYSES		% LOSS OR GAIN OF SPIKE
SPIKED SAMPLES		RELATIVE PERCENT ERROR
LAB. CONTROL STANDARD		RELATIVE PERCENT ERROR
REFERENCE STANDARDS		

	PARTIAL METHOD AUDIT *********************	AUDIT TYPE **********	AUDIT FREQUENCY ***************	CONTROL LIMITS **************
1.				
2.				
3.				
4.				
5.				

	INSTRUMENT AUDITS *****************	AUDIT TYPE **********	AUDIT FREQUENCY ***************	CONTROL LIMITS **************
1.				
2.				
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM TO

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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U. S. EPA CENTRAL REGION 5 LAB                    6 / 30 / 1977
                   QUALITY ASSURANCE DATA FOR               HARDNESS
-------------------------------------------------------------------------
METHOD STORET  PARAMETER        SAMPLE  METHOD
NUMBER NUMBER                   TYPE    DESCRIPTION              *   #   METHOD REFERENCE
-------------------------------------------------------------------------
 385   00900   HARDNESS         WATER   CALCULATED FROM METAL DATA
                                                                 N   N   NONE
-------------------------------------------------------------------------

         PERFORMANCE AUDIT               AUDIT FREQUENCY          CONTROL LIMITS
         (FOR TOTAL METHOD)              (% OF ANALYSES)          SEE APP. #1 FOR CALCULATIONS
         *******************             ****************         ************************
         REAGENT BLANK                                                     MG/L
         DUPLICATE ANALYSES                                                RELATIVE PERCENT DIFFERENCE
         SPIKED SAMPLES                                                    % LOSS OR GAIN OF SPIKE
         LAB. CONTROL STANDARD                                             RELATIVE PERCENT ERROR
         REFERENCE STANDARDS                                               RELATIVE PERCENT ERROR

            PARTIAL METHOD AUDIT      AUDIT TYPE        AUDIT FREQUENCY    CONTROL LIMITS
            ********************      **********        **************     **************
         1.
         2.
         3.
         4.
         5.

            INSTRUMENT AUDITS         AUDIT TYPE        AUDIT FREQUENCY    CONTROL LIMITS
            *****************         **********        **************     **************
         1.
         2.
         3.
         4.
         5.

APPROXIMATE DETECTION LIMIT 0.01 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0.01 MG/L TO 100 MG/L

      PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977

QUALITY ASSURANCE DATA FOR MBAS TOTAL

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	*	METHOD REFERENCE
307	38260	MBAS TOTAL	WATER				1-SEC512A

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (X OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
*********************	******************	*************************	
REAGENT BLANK	DAILY	0-0.05	MG/L
DUPLICATE ANALYSES	DAILY	+0.1	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			X LOSS OR GAIN OF SPIKE
LAB CONTROL STANDARD			RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.				
2.				
3.				
4.				
5.				

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	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.				
2.				
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT 0.05 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0.05 MG/L TO 1.00 MG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

J. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
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QUALITY ASSURANCE DATA FOR MERCURY-TOT

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	*	METHOD REFERENCE
390	71900	MERCURY-TOT	WATER	AUTO. FLAMELESS AA			REF. 19

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. 01 FOR CALCULATIONS	
REAGENT BLANK	ONCE/40 ANALYSES	0-0.1	UG/L
DUPLICATE ANALYSES	ONCE/40 ANALYSES	<0.1	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	ONCE/40 ANALYSES	10%	RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
1.	LAB CONTROL STD.	CONC=0.96 UG/L	EVERY 40 SAMPLES	10% REL. % ERROR
2.	LAB CONTROL STD.	CONC=1.44 UG/L	EVERY 40 SAMPLES	7% REL. % ERROR
3.	REPEATS	CHECK	ALL SAMPLES >0.5 UG/L	20% REL. % ERROR
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
1.				
2.				
3.				
4.				
5.				

161<

APPROXIMATE DETECTION LIMIT 0.1 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0.1 UG/L TO 2.0 UG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977

QUALITY ASSURANCE DATA FOR MERCURY

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
393	71921	MERCURY	SEDIMENT	AUTO. FLAMELESS AA			REF. 19

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. 01 FOR CALCULATIONS	
********************	******************	***************************	
REAGENT BLANK	ONCE/40 ANALYSES	0-0. 1 UG/L	UG/L
DUPLICATE ANALYSES			RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	ONCE/40 SAMPLES	10%	RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	**********************	**********	***************	**************
1.	LAB CONTROL STD.	CONC=0. 96 UG/L	EVERY 40 SAMPLES	10% REL. % ERROR
2.	LAB CONTROL STD.	CONC=1. 44 UG/L	EVERY 40 SAMPLES	7% REL. % ERROR
3.				
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.				
2.				
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT 0. 1 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0. 1 UG/L TO 2. 0 UG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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U. S. EPA CENTRAL REGION 5 LAB                    6 / 30 / 1977
9
                    QUALITY ASSURANCE DATA FOR              MERCURY

METHOD STORET  PARAMETER          SAMPLE    METHOD                                    *    #   METHOD REFERENCE
NUMBER NUMBER                     TYPE      DESCRIPTION

 394           MERCURY            SEDIMENT  AUTOMATED FLAMELESS AA                    Y    Y   REF. 21

         PERFORMANCE AUDIT                     AUDIT FREQUENCY            CONTROL LIMITS
         (FOR TOTAL METHOD)                    (% OF ANALYSES)            SEE APP. 01 FOR CALCULATIONS
         ********************                  *****************          *************************
         REAGENT BLANK
         DUPLICATE ANALYSES                                                         RELATIVE PERCENT DIFFERENCE
         SPIKED SAMPLES                                                             % LOSS OR GAIN OF SPIKE
         LAB CONTROL STANDARD                                                       RELATIVE PERCENT ERROR
         REFERENCE STANDARDS                                                        RELATIVE PERCENT ERROR

            PARTIAL METHOD AUDIT          AUDIT TYPE             AUDIT FREQUENCY       CONTROL LIMITS
            ********************          **********             ***************       **************
         1.
         2.
         3.
         4.
         5.

            INSTRUMENT AUDITS             AUDIT TYPE             AUDIT FREQUENCY       CONTROL LIMITS
            *****************             **********             ***************       **************
         1.
         2.
         3.
         4.
         5.

APPROXIMATE DETECTION LIMIT

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM    TO

      PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB              6 / 30 / 1977
                   QUALITY ASSURANCE DATA FOR          NITRATE-NITRITE

METHOD STORET  PARAMETER          SAMPLE    METHOD                                  *   #   METHOD REFERENCE
NUMBER NUMBER                     TYPE      DESCRIPTION

 396    00630  NITRATE-NITRITE    WATER     CADMIUM REDUCTION                                   9-150-71W

          PERFORMANCE AUDIT                 AUDIT FREQUENCY            CONTROL LIMITS
          (FOR TOTAL METHOD)                (% OF ANALYSES)            SEE APP. #1 FOR CALCULATIONS
          ********************              ****************           ************************
          REAGENT BLANK                     HOURLY                     0-0.03        MG/L
          DUPLICATE ANALYSES                HOURLY                     5% OF VALUE   RELATIVE PERCENT DIFFERENCE
          SPIKED SAMPLES                                                             % LOSS OR GAIN OF SPIKE
          LAB. CONTROL STANDARD             HOURLY                     3.5%          RELATIVE PERCENT ERROR
          REFERENCE STANDARDS                                                        RELATIVE PERCENT ERROR

             PARTIAL METHOD AUDIT        AUDIT TYPE            AUDIT FREQUENCY       CONTROL LIMITS
             ********************        **********            ***************       **************
          1.  LAB CONTROL STD.           CONC=4.00 MG/L        HOURLY                3.5% REL. % ERROR
          2.  LAB CONTROL STD.           CONC=5.00 MG/L        HOURLY                4% REL. % ERROR
          3.
          4.
          5.

             INSTRUMENT AUDITS           AUDIT TYPE            AUDIT FREQUENCY       CONTROL LIMITS
             *****************           **********            ***************       **************
          1.  CAL. <1.50                 CHECK                 DAILY                 <1.50
          2.
          3.
          4.
          5.

APPROXIMATE DETECTION LIMIT 0.03 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0.03 MG/L TO 10.00 MG/L

        PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB                6 / 30 / 1977
9
                    QUALITY ASSURANCE DATA FOR          NITRATE-NITRITE

METHOD STORET  PARAMETER         SAMPLE   METHOD                                      METHOD REFERENCE
NUMBER NUMBER                    TYPE     DESCRIPTION
 399   00630   NITRATE-NITRITE   WATER    LOW LEVEL CADMIUM REDUCTION                9-150-710

          PERFORMANCE AUDIT              AUDIT FREQUENCY       CONTROL LIMITS
          (FOR TOTAL METHOD)             (% OF ANALYSES)       SEE APP. 01 FOR CALCULATIONS
          ********************           ****************      ***************************
          REAGENT BLANK                  HOURLY                0.003         MG/L
          DUPLICATE ANALYSES             HOURLY                5             RELATIVE PERCENT DIFFERENCE
          SPIKED SAMPLES                                                     % LOSS OR GAIN OF SPIKE
          LAB. CONTROL STANDARD          HOURLY                5             RELATIVE PERCENT ERROR
          REFERENCE STANDARDS            QUARTERLY             5             RELATIVE PERCENT ERROR

             PARTIAL METHOD AUDIT     AUDIT TYPE        AUDIT FREQUENCY      CONTROL LIMITS
             ********************     **********        ***************      **************
          1. LAB CONTROL STD.         APPROX. 0.4       HOURLY               4% REL. DIFFERENCE
          2. LAB CONTROL STD.         APPROX. 0.5       HOURLY               4% REL. DIFFERENCE
          3.
          4.
          5.

             INSTRUMENT AUDITS        AUDIT TYPE        AUDIT FREQUENCY      CONTROL LIMITS
             *****************        **********        ***************      **************
          1. STANDARD CAL.                              DAILY                10% NORMAL SETTING
          2.
          3.
          4.
          5.

APPROXIMATE DETECTION LIMIT 0.003 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0.003 MG/L TO 1.00 MG/L

     PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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                                                        6 / 30 / 1977
U. S. EPA CENTRAL  REGION 5 LAB
9                      QUALITY ASSURANCE DATA FOR                  NITRITE-TOTAL

                                                                  * * METHOD REFERENCE
METHOD STORET  PARAMETER        SAMPLE   METHOD
NUMBER NUMBER                   TYPE     DESCRIPTION                          9-158-71W

 402   00615   NITRITE-TOTAL    WATER    DIAZOTIZATION REACTION

                                                           CONTROL LIMITS
                                       AUDIT FREQUENCY     SEE APP. 01 FOR CALCULATIONS
      PERFORMANCE AUDIT                (% OF ANALYSES)     ************************
      (FOR TOTAL METHOD)               ****************    0-0.03      MG/L
      *******************              HOURLY                          RELATIVE PERCENT DIFFERENCE
      REAGENT BLANK                                                    % LOSS OR GAIN OF SPIKE
      DUPLICATE ANALYSES                                   +.10 UNITS  RELATIVE PERCENT ERROR
      SPIKED SAMPLES                   DAILY                           RELATIVE PERCENT ERROR
      LAB. CONTROL STANDARD
      REFERENCE STANDARDS                              AUDIT FREQUENCY       CONTROL LIMITS
             PARTIAL METHOD AUDIT   AUDIT TYPE         ***************       **************
             ********************   **********

      1.
      2.
      3.
      4.
      5.
                                                       AUDIT FREQUENCY       CONTROL LIMITS
             INSTRUMENT AUDITS      AUDIT TYPE         ***************       **************
             *****************      **********

      1.
      2.
      3.
      4.
      5.
APPROXIMATE DETECTION LIMIT 0.03 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0.03 MG/L TO 10.00 MG/L

      PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977

QUALITY ASSURANCE DATA FOR PH-LAB

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	*	METHOD REFERENCE
405	00403	PH-LAB	WATER	PH METER			1-[illegible] 436

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
**********************	*****************	**************************	
REAGENT BLANK			PH UNIT
DUPLICATE ANALYSES	DAILY	3	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	DAILY	3	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	QUARTERLY	4	RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.	LAB CONTROL STD.	PH=6.86	DAILY	3% PPD
2.	LAB CONTROL STD.	PH=4.00	DAILY	3% RPD
3.				
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.	TEMPERATURE	CHECK	DAILY	METER +1% OF SAMPLE
2.				
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT 0.1 PH UNIT

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0 PH UNIT TO 14 PH UNIT

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977

QUALITY ASSURANCE DATA FOR PHENOLICS-TOT.

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
408	32730	PHENOLICS-TOT.	WATER	DISTILLATION & AUTO. 4AAP COLORIMETRY			9-127-71M

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	****************	**************************	
REAGENT BLANK	EVERY 20 SAMPLES	0.5	UG/L
DUPLICATE ANALYSES	EVERY 40 SAMPLES	5	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	EVERY 40 SAMPLES	5%	RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.	LAB CONTROL STD.	CONC=75 UG/L	DAILY	7% REL. % ERROR
2.	LAB CONTROL STD.	CONC=150 UG/L	DAILY	4% REL. % ERROR
3.				
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	**************	**************
1.				
2.				
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT 5 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 5 UG/L TO 200 UG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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U. S. EPA CENTRAL REGION 5 LAB                    6 / 30 / 1977
                      QUALITY ASSURANCE DATA FOR                 PHENOLICS
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METHOD STORET  PARAMETER           SAMPLE   METHOD                          *   #   METHOD REFERENCE
NUMBER NUMBER                      TYPE     DESCRIPTION
----------------------------------------------------------------------------------
 411   32730   PHENOLICS           WATER    STANDARD METHODS                        REF1-P0239
----------------------------------------------------------------------------------

          PERFORMANCE AUDIT                   AUDIT FREQUENCY             CONTROL LIMITS
          (FOR TOTAL METHOD)                  (% OF ANALYSES)             SEE APP.#1 FOR CALCULATIONS
          ********************                *****************           **************************
          REAGENT BLANK
          DUPLICATE ANALYSES                                                       RELATIVE PERCENT DIFFERENCE
          SPIKED SAMPLES                                                           % LOSS OR GAIN OF SPIKE
          LAB CONTROL STANDARD                                                     RELATIVE PERCENT ERROR
          REFERENCE STANDARDS                                                      RELATIVE PERCENT ERROR

               PARTIAL METHOD AUDIT       AUDIT TYPE           AUDIT FREQUENCY     CONTROL LIMITS
               ********************       **********           ***************     *************
          1.
          2.
          3.
          4.
          5.

               INSTRUMENT AUDITS          AUDIT TYPE           AUDIT FREQUENCY     CONTROL LIMITS
               *****************          **********           ***************     *************
          1.
          2.
          3.
          4.
          5.

APPROXIMATE DETECTION LIMIT

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM    TO

          PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB                6 / 30 / 1977
                QUALITY ASSURANCE DATA FOR              PHENOLICS

METHOD STORET  PARAMETER          SAMPLE   METHOD                                          *   *   METHOD REFERENCE
NUMBER NUMBER                     TYPE     DESCRIPTION

 414   32730   PHENOLICS          WATER    TECHNICON WITHOUT MANUAL DISTILLATION                   9-127-71M

        PERFORMANCE AUDIT                  AUDIT FREQUENCY           CONTROL LIMITS
        (FOR TOTAL METHOD)                 (% OF ANALYSES)           SEE APP. 01 FOR CALCULATIONS
        ********************               ****************          ****************************
        REAGENT BLANK                      EVERY 20 SAMPLES          0.5           UG/L
        DUPLICATE ANALYSES                 EVERY 40 SAMPLES          5             RELATIVE PERCENT DIFFERENCE
        SPIKED SAMPLES                                                             % LOSS OR GAIN OF SPIKE
        LAB. CONTROL STANDARD              EVERY 40 SAMPLES          5%            RELATIVE PERCENT ERROR
        REFERENCE STANDARDS                                                        RELATIVE PERCENT ERROR

           PARTIAL METHOD AUDIT        AUDIT TYPE             AUDIT FREQUENCY        CONTROL LIMITS
           ********************        **********             ***************        ***************
     1.    LAB CONTROL STD.            CONC=75 UG/L           DAILY                  7% REL. % ERROR
     2.    LAB CONTROL STD.            CONC=150% UG/L         DAILY                  4% REL. % ERROR
     3.
     4.
     5.

           INSTRUMENT AUDITS           AUDIT TYPE             AUDIT FREQUENCY        CONTROL LIMITS
           *****************           **********             ***************        ***************
     1.
     2.
     3.
     4.
     5.

APPROXIMATE DETECTION LIMIT 5 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 5 UG/L TO 200 UG/L

      PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977

QUALITY ASSURANCE DATA FOR PHENOLICS

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	*	METHOD REFERENCE
417	32731	PHENOLICS	SEDIMENT	STANDARD METHOD			REF2-P0576

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS
********************	*****************	**************************
REAGENT BLANK		
DUPLICATE ANALYSES		RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES		% LOSS OR GAIN OF SPIKE
LAB CONTROL STANDARD		RELATIVE PERCENT ERROR
REFERENCE STANDARDS		RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.				
2.				
3.				
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.				
2.				
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM TO

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

J. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977

QUALITY ASSURANCE DATA FOR PHOSPHORUS-SRP

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
420	00671	PHOSPHORUS-SRP	WATER	SOLUBLE REACTIVE PHOSPHORUS BY MOLYBDATE			9-15B-71M

PERFORMANCE AUDIT (FOR TOTAL METHOD) **********************	AUDIT FREQUENCY (% OF ANALYSES) ******************	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS ***************************	
REAGENT BLANK	5	0-0.005	MG/L
DUPLICATE ANALYSES	5	5	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	5	10	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	QUARTERLY	10	RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT ********************	AUDIT TYPE **********	AUDIT FREQUENCY ***************	CONTROL LIMITS **************
1.				
2.				
3.				
4.				
5.				

	INSTRUMENT AUDITS *****************	AUDIT TYPE **********	AUDIT FREQUENCY ***************	CONTROL LIMITS **************
1.				
2.				
3.				
4.				
5.				

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APPROXIMATE DETECTION LIMIT 0.005 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0.005 MG/L TO 1.000 MG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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U. S. EPA CENTRAL REGION 5 LAB                    6 / 30 / 1977
                   QUALITY ASSURANCE DATA FOR            PHOSPHORUS
-----------------------------------------------------------------------------------
METHOD STORET  PARAMETER          SAMPLE   METHOD                               *   #   METHOD REFERENCE
NUMBER NUMBER                     TYPE     DESCRIPTION
-----------------------------------------------------------------------------------
 423   00665   PHOSPHORUS         WATER    TKN DIGESTION & AUTO. MOLYBDATE                  REF. 23
-----------------------------------------------------------------------------------

        PERFORMANCE AUDIT                   AUDIT FREQUENCY            CONTROL LIMITS
        (FOR TOTAL METHOD)                  (% OF ANALYSES)            SEE APP. #1 FOR CALCULATIONS
        ********************                *****************          **************************
        REAGENT BLANK                       ONCE/40 ANALYSES           0. .-0.02       MG/L
        DUPLICATE ANALYSES                  ONCE/40 ANALYSES           4% OF VALUE     RELATIVE PERCENT DIFFERENCE
        SPIKED SAMPLES                                                                 % LOSS OR GAIN OF SPIKE
        LAB. CONTROL STANDARD               ONCE/40ANALYSES            5%              RELATIVE PERCENT ERROR
        REFERENCE STANDARDS                                                            RELATIVE PERCENT ERROR

           PARTIAL METHOD AUDIT        AUDIT TYPE             AUDIT FREQUENCY          CONTROL LIMITS
           ********************        **********             ***************          **************
        1. LAB CONTROL STD.            CONC=1.00 MG/L         EACH BLOCK OF 40 SAMPLES 5% REL. % ERROR
        2. LAB CONTROL STD.            CONC=2.00 MG/L         EACH BLOCK OF 40 SAMPLES 5% REL. % ERROR
        3.
        4.
        5.

           INSTRUMENT AUDITS           AUDIT TYPE             AUDIT FREQUENCY          CONTROL LIMITS
           *****************           **********             ***************          **************
        1.
        2.
        3.
        4.
        5.

APPROXIMATE DETECTION LIMIT 0.02 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0.02 MG/L TO 4.00 MG/L

        PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL  REGION 5 LAB              6 / 30 / 1977
 9
                 QUALITY  ASSURANCE  DATA  FOR           PHOSPHORUS

                                                              *    *   METHOD REFERENCE
METHOD STORET  PARAMETER         SAMPLE   METHOD
NUMBER NUMBER                    TYPE     DESCRIPTION
                                                                       REF. 1-P481
 426   00665   PHOSPHORUS        WATER    ACID DIGESTION

        PERFORMANCE AUDIT             AUDIT FREQUENCY           CONTROL LIMITS
        (FOR TOTAL METHOD)            (% OF ANALYSES)           SEE APP. 01 FOR CALCULATIONS
        *******************           ***************           ****************************
        REAGENT BLANK                                                   RELATIVE PERCENT DIFFERENCE
        DUPLICATE ANALYSES                                              % LOSS OR GAIN OF SPIKE
        SPIKED SAMPLES                                                  RELATIVE PERCENT ERROR
        LAB. CONTROL STANDARD                                           RELATIVE PERCENT ERROR
        REFERENCE STANDARDS
            PARTIAL METHOD AUDIT   AUDIT TYPE           AUDIT FREQUENCY      CONTROL LIMITS
            ********************   **********           ***************      **************
        1.
        2.
        3.
        4.
        5.
            INSTRUMENT AUDITS      AUDIT TYPE           AUDIT FREQUENCY      CONTROL LIMITS
            *****************      **********           ***************      **************
174<    1.
        2.
        3.
        4.
        5.
APPROXIMATE DETECTION LIMIT

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM    TO

      PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB                    6 / 30 / 1977
                    QUALITY ASSURANCE DATA FOR                 PHOSPHORUS

METHOD STORET  PARAMETER          SAMPLE  METHOD                                        *  *  METHOD REFERENCE
NUMBER NUMBER                     TYPE    DESCRIPTION

 429   00665   PHOSPHORUS         WATER   PERSULFATE SEMI-AUTO. MOLYBDATE                     9-155-71W

         PERFORMANCE AUDIT                  AUDIT FREQUENCY            CONTROL LIMITS
         (FOR TOTAL METHOD)                 (% OF ANALYSES)            SEE APP. 01 FOR CALCULATIONS
         ******************                 *************              **************************
         REAGENT BLANK                      5                          0.003        MG/L
         DUPLICATE ANALYSES                 5                          5            RELATIVE PERCENT DIFFERENCE
         SPIKED SAMPLES                                                             % LOSS OR GAIN OF SPIKE
         LAB CONTROL STANDARD               5                          5            RELATIVE PERCENT ERROR
         REFERENCE STANDARDS                QUARTERLY                  5            RELATIVE PERCENT ERROR

            PARTIAL METHOD AUDIT        AUDIT TYPE          AUDIT FREQUENCY         CONTROL LIMITS
            ********************        **********          ***************         **************
         1. LAB CONTROL STD.            ABOUT 0.1           HOURLY                  5 RELATIVE DIFFERENCE
         2. LAB CONTROL STD.            ABOUT 0.05          HOURLY                  5 RELATIVE DIFFERENCE
         3.
         4.
         5.

            INSTRUMENT AUDITS           AUDIT TYPE          AUDIT FREQUENCY         CONTROL LIMITS
            *****************           **********          ***************         **************
         1. STANDARD CAL.                                   DAILY                   10% OF NORMAL SETTING
         2.
         3.
         4.
         5.

APPROXIMATE DETECTION LIMIT 0.003 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0.003 MG/L TO 0.20 MG/L

    PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977

QUALITY ASSURANCE DATA FOR PHOSPHORUS

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	*	METHOD REFERENCE
432		PHOSPHORUS		VANADIUM MANUAL COLORIMETRIC PROCEDURE			REF. 1-P476

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. 01 FOR CALCULATIONS
********************	********************	******************************
REAGENT BLANK		RELATIVE PERCENT DIFFERENCE
DUPLICATE ANALYSES		% LOSS OR GAIN OF SPIKE
SPIKED SAMPLES		RELATIVE PERCENT ERROR
LAB CONTROL STANDARD		RELATIVE PERCENT ERROR
REFERENCE STANDARDS		

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	***************
1.				
2.				
3.				
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	***************
1.				
2.				
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM TO

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977

QUALITY ASSURANCE DATA FOR PHOSPHORUS-TOT.

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
435	00668	PHOSPHORUS-TOT.	SEDIMENT	KJELDAHL DIGESTION-MOLYBDATE ANAL.			ALT. TEST

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	****************	*************************	
REAGENT BLANK	ONCE/40 SAMPLES	0-0.02	MG/L
DUPLICATE ANALYSES			RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	ONCE/40 ANALYSES	5%	RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	**************	*************
1.	LAB CONTROL STD.	CONC=1.00 MG/L	ONCE/BLOCK OF 40 SAMPLES	5% REL. % ERROR
2.	LAB CONTROL STD.	CONC=2.00 MG/L	ONCE/BLOCK OF 40 SAMPLES	5% REL. % ERROR
3.				
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	****************	**********	**************	*************
1.	UNITS CHANGED TO	MG/KG BASED	ON PERCENT SOLIDS	
2.				
3.				
4.				
5.				

177<

APPROXIMATE DETECTION LIMIT 0.02 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0.02 MG/L TO 4.00 MG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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J. S. EPA CENTRAL REGION 5 LAB               6 / 30 / 1977
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              QUALITY ASSURANCE DATA FOR                RESIDUE-DISS.
-----------------------------------------------------------------------
METHOD STORET PARAMETER         SAMPLE  METHOD                 *  *  METHOD REFERENCE
NUMBER NUMBER                   TYPE    DESCRIPTION
-----------------------------------------------------------------------
                                                                     CR. PROC.
 438   00300  RESIDUE-DISS.     WATER   MICRO METHOD
-----------------------------------------------------------------------

      PERFORMANCE AUDIT                 AUDIT FREQUENCY          CONTROL LIMITS
      (FOR TOTAL METHOD)                (% OF ANALYSES)          SEE APP. #1 FOR CALCULATIONS
      *******************               ****************         ************************
      REAGENT BLANK                     EVERY SAMPLE SET         0-5          MG/KG
      DUPLICATE ANALYSES                EVERY SAMPLE SET         +5%          RELATIVE PERCENT DIFFERENCE
      SPIKED SAMPLES                                                          % LOSS OR GAIN OF SPIKE
      LAB CONTROL STANDARD              EVERY SAMPLE SET         4%           RELATIVE PERCENT ERROR
      REFERENCE STANDARDS                                                     RELATIVE PERCENT ERROR

         PARTIAL METHOD AUDIT        AUDIT TYPE           AUDIT FREQUENCY     CONTROL LIMITS
         ********************        **********           ***************     **************
      1. CONTROL STD.                CONC=96 MG/L         EVERY SAMPLE SET    4% REL. % ERROR
      2.
      3.
      4.
      5.

         INSTRUMENT AUDITS           AUDIT TYPE           AUDIT FREQUENCY     CONTROL LIMITS
         *****************           **********           ***************     **************
      1.
      2.
      3.
      4.
      5.

APPROXIMATE DETECTION LIMIT 5 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 5 MG/KG TO - MG/KG

     PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB                  6 / 30 / 1977
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                      QUALITY ASSURANCE DATA FOR              RESIDUE-NONFILT

METHOD STORET  PARAMETER          SAMPLE   METHOD                                  *.  *   METHOD REFERENCE
NUMBER NUMBER                     TYPE     DESCRIPTION

 441   00530   RESIDUE-NONFILT    WATER                                                    1-[illegible]

         PERFORMANCE AUDIT                 AUDIT FREQUENCY             CONTROL LIMITS
         (FOR TOTAL METHOD)                (% OF ANALYSES)             SEE APP. #1 FOR CALCULATIONS
         *******************               ****************            ***********************
         REAGENT BLANK                     2 EVERY SAMPLE SET          0-2         MG/L
         DUPLICATE ANALYSES                EVERY SAMPLE SET            +9 MG/L     RELATIVE PERCENT DIFFERENCE
         SPIKED SAMPLES                                                            % LOSS OR GAIN OF SPIKE
         LAB. CONTROL STANDARD             EVERY SAMPLE SET            7%          RELATIVE PERCENT ERROR
         REFERENCE STANDARDS                                                       RELATIVE PERCENT ERROR

            PARTIAL METHOD AUDIT       AUDIT TYPE          AUDIT FREQUENCY        CONTROL LIMITS
            ********************       **********          ***************        **************
         1. CONTROL STD.               CONC=78 MG/L        EVERY SAMPLE SET       7% REL. % ERROR
         2.
         3.
         4.
         5.

            INSTRUMENT AUDITS          AUDIT TYPE          AUDIT FREQUENCY        CONTROL LIMITS
            *****************          **********          ***************        **************
         1.
         2.
         3.
         4.
         5.

APPROXIMATE DETECTION LIMIT 2 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 2 MG/L TO - MG/L

     PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB                    6 / 30 / 1977
                    QUALITY ASSURANCE DATA FOR              RESIDUE-PERCENT
--------------------------------------------------------------------------------
METHOD STORET  PARAMETER            SAMPLE   METHOD                    *   #   METHOD REFERENCE
NUMBER NUMBER                       TYPE     DESCRIPTION
--------------------------------------------------------------------------------
 444   70310   RESIDUE-PERCENT      SEDIMENT                                   1-SEC200A
--------------------------------------------------------------------------------

         PERFORMANCE AUDIT              AUDIT FREQUENCY           CONTROL LIMITS
         (FOR TOTAL METHOD)             (% OF ANALYSES)           SEE APP. #1 FOR CALCULATIONS
         ********************           *****************         *****************************
         REAGENT BLANK                                                     %
         DUPLICATE ANALYSES             EVERY SET/OR 15 SPLS      <4%      RELATIVE PERCENT DIFFERENCE
         SPIKED SAMPLES                                                    % LOSS OR GAIN OF SPIKE
         LAB CONTROL STANDARD                                              RELATIVE PERCENT ERROR
         REFERENCE STANDARDS                                               RELATIVE PERCENT ERROR

            PARTIAL METHOD AUDIT    AUDIT TYPE          AUDIT FREQUENCY     CONTROL LIMITS
            ********************    **********          ***************     **************
         1.
         2.
         3.
         4.
         5.

            INSTRUMENT AUDITS       AUDIT TYPE          AUDIT FREQUENCY     CONTROL LIMITS
            *****************       **********          ***************     **************
         1.
         2.
         3.
         4.
         5.
APPROXIMATE DETECTION LIMIT 5.0 %

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 5 % TO 100 %

         PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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J. S. EPA CENTRAL REGION 5 LAB                  6 / 30 / 1977
                         QUALITY ASSURANCE DATA FOR              RESIDUE-VOL. %
-----------------------------------------------------------------------------------
METHOD STORET  PARAMETER            SAMPLE   METHOD
NUMBER NUMBER                       TYPE     DESCRIPTION             *   #   METHOD REFERENCE
-----------------------------------------------------------------------------------
 447   70322   RESIDUE-VOL %        SEDIMENT                                   1-SEC2080
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          PERFORMANCE AUDIT              AUDIT FREQUENCY           CONTROL LIMITS
          (FOR TOTAL METHOD)             (% OF ANALYSES)           SEE APP. 01 FOR CALCULATIONS
          *******************            ***************           **************************
          REAGENT BLANK                                                         %
          DUPLICATE ANALYSES             EVERY SET/OR 15 SPLS      <0.6%        RELATIVE PERCENT DIFFERENCE
          SPIKED SAMPLES                                                        % LOSS OR GAIN OF SPIKE
          LAB. CONTROL STANDARD                                                 RELATIVE PERCENT ERROR
          REFERENCE STANDARDS                                                   RELATIVE PERCENT ERROR

             PARTIAL METHOD AUDIT      AUDIT TYPE            AUDIT FREQUENCY        CONTROL LIMITS
             ********************      **********            ***************        **************
          1.
          2.
          3.
          4.
          5.

             INSTRUMENT AUDITS         AUDIT TYPE            AUDIT FREQUENCY        CONTROL LIMITS
             *****************         **********            ***************        **************
          1.
          2.
          3.
          4.
          5.

APPROXIMATE DETECTION LIMIT 0.5 %

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0.6 % TO 100 %

      PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION [illegible] LAB              6 / 30 / 1977
                     QUALITY ASSURANCE DATA FOR              SILICA
-------------------------------------------------------------------------------------------
METHOD STORET  PARAMETER            SAMPLE   METHOD                          *   *   METHOD REFERENCE
NUMBER NUMBER                       TYPE     DESCRIPTION
-------------------------------------------------------------------------------------------
 450   00956   SILICA               WATER    MOLYBDATE                                9-105-71W
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       PERFORMANCE AUDIT                     AUDIT FREQUENCY          CONTROL LIMITS
       (FOR TOTAL METHOD)                    (% OF ANALYSES)          SEE APP. #1 FOR CALCULATIONS
       ************************              ************************ ******************************
       REAGENT BLANK                         EVERY 20 SAMPLES         0.1            MG/L
       DUPLICATE ANALYSES                    EVERY 20 SAMPLES         0.5 MG/L       RELATIVE PERCENT DIFFERENCE
       SPIKED SAMPLES                                                                % LOSS OR GAIN OF SPIKE
       LAB CONTROL STANDARD                  EVERY 20 SAMPLES         8%             RELATIVE PERCENT ERROR
       REFERENCE STANDARDS                   QUARTERLY                10%            RELATIVE PERCENT ERROR

           PARTIAL METHOD AUDIT         AUDIT TYPE          AUDIT FREQUENCY        CONTROL LIMITS
           ********************         **********          ***************        **************
       1.  LAB CONTROL STD.             CONC=6.4 MG/L       HOURLY                 8% REL. % ERROR
       2.  LAB CONTROL STD.             CONC=5.5 MG/L       HOURLY                 9% REL. % ERROR
       3.
       4.
       5.

           INSTRUMENT AUDITS            AUDIT TYPE          AUDIT FREQUENCY        CONTROL LIMITS
           *****************            **********          ***************        **************
       1.
       2.
       3.
       4.
       5.

APPROXIMATE DETECTION LIMIT 0.2 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0.2 MG/L TO 10.0 MG/L

       PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB

QUALITY ASSURANCE DATA FOR SULFATE

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
480	00945	SULFATE	WATER	METHLTHYMOL BLUE			9-118-71H

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	*****************	**************************	
REAGENT BLANK	EVERY 20 SAMPLES	0-2	MG/L
DUPLICATE ANALYSES	EVERY 20 SAMPLES	DIFF. +5 MG/L	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB CONTROL STANDARD	EVERY 20 SAMPLES	4.5	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	QUARTERLY	5	RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.	LAB CONTROL STD.	CONC=116 MG/L	HOURLY	4.5% REL. % ERROR
2.	LAB CONTROL STD.	CONC=97 MG/L	HOURLY	5% REL. % ERROR
3.				
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.				
2.				
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT 3 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 3 MG/L TO 300 MG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-2370

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977

QUALITY ASSURANCE DATA FOR SULFATE

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
456	00945	SULFATE	WATER	LOW LEVEL M+B			9-110-71W

PERFORMANCE AUDIT (FOR TOTAL METHOD) ********************	AUDIT FREQUENCY (% OF ANALYSES) *****************	CONTROL LIMITS SEE APP. 01 FOR CALCULATIONS **************************	
REAGENT BLANK	5	0.2	MG/L
DUPLICATE ANALYSES	5		RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	5		RELATIVE PERCENT ERROR
REFERENCE STANDARDS	QUARTERLY		RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT ********************	AUDIT TYPE **********	AUDIT FREQUENCY ***************	CONTROL LIMITS **************
1.	LAB CONTROL STD.	APPROX. 12	HOURLY	5% REL. % DIFFERENCE
2.	LAB CONTROL STD.	APPROX. 10	HOURLY	5% REL. % DIFFERENCE
3.				
4.				
5.				

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	INSTRUMENT AUDITS ******************	AUDIT TYPE **********	AUDIT FREQUENCY ***************	CONTROL LIMITS **************
1.	STANDARD CAL.		DAILY	10% OF NOMINAL VALUE
2.				
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT 0.2 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0.2 MG/L TO 30 MG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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U. S. EPA CENTRAL REGION 5 LAB                    6 / 30 / 1977
                         QUALITY ASSURANCE DATA FOR              SULFATE
--------------------------------------------------------------------------------------
METHOD STORET  PARAMETER           SAMPLE  METHOD                          *  #  METHOD REFERENCE
NUMBER NUMBER                      TYPE    DESCRIPTION
--------------------------------------------------------------------------------------
 459   00945   SULFATE             WATER   STANDARD TURBIDIMETRIC METHOD           REF. 1-P496
--------------------------------------------------------------------------------------

      PERFORMANCE AUDIT          AUDIT FREQUENCY        CONTROL LIMITS
      (FOR TOTAL METHOD)         (% OF ANALYSES)        SEE APP. #1 FOR CALCULATIONS
      ******************         ****************       *************************
      REAGENT BLANK
      DUPLICATE ANALYSES                                          RELATIVE PERCENT DIFFERENCE
      SPIKED SAMPLES                                              % LOSS OR GAIN OF SPIKE
      LAB. CONTROL STANDARD                                       RELATIVE PERCENT ERROR
      REFERENCE STANDARDS                                         RELATIVE PERCENT ERROR

         PARTIAL METHOD AUDIT   AUDIT TYPE     AUDIT FREQUENCY    CONTROL LIMITS
         ********************   **********     ***************    **************
      1.
      2.
      3.
      4.
      5.

         INSTRUMENT AUDITS      AUDIT TYPE     AUDIT FREQUENCY    CONTROL LIMITS
         *****************      **********     ***************    **************
185<  1.
      2.
      3.
      4.
      5.
APPROXIMATE DETECTION LIMIT

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM    TO

      PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977

QUALITY ASSURANCE DATA FOR SULFIDE-TOTAL

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
442	00745	SULFIDE-TOTAL	WATER	METHYLENE BLUE			REF. 1-P503

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	*****************	**************************	
REAGENT BLANK	100	0.1	MG/L
DUPLICATE ANALYSES			RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB CONTROL STANDARD	100	10	RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.				
2.				
3.				
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.				
2.				
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT 0.1 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0.1 MG/L TO 1 MG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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U. S. EPA CENTRAL REGION 5 LAB                 6 / 30 / 1977
                   QUALITY ASSURANCE DATA FOR           TKN-TOTAL

METHOD STORET PARAMETER          SAMPLE    METHOD                                        *    #   METHOD REFERENCE
NUMBER NUMBER                    TYPE      DESCRIPTION

 465   00625  TKN-TOTAL          WATER     MICO KJELDAHL                                          REF. 14

          PERFORMANCE AUDIT                    AUDIT FREQUENCY            CONTROL LIMITS
          (FOR TOTAL METHOD)                   (% OF ANALYSES)            SEE APP. #1 FOR CALCULATIONS
          ********************                 ****************           ****************************
          REAGENT BLANK                        ONCE/40 ANALYSES           0-0.05          MG/L
          DUPLICATE ANALYSES                   ONCE/40 ANALYSES           21% OF VALUE    RELATIVE PERCENT DIFFERENCE
          SPIKED SAMPLES                                                                  % LOSS OR GAIN OF SPIKE
          LAB. CONTROL STANDARD                ONCE/40 ANALYSES           11              RELATIVE PERCENT ERROR
          REFERENCE STANDARDS                                                             RELATIVE PERCENT ERROR

             PARTIAL METHOD AUDIT       AUDIT TYPE            AUDIT FREQUENCY             CONTROL LIMITS
             ********************       **********            ***************             **************
          1. CONTROL STD.               CONC=2.25 MG/L        ONCE/BLOCK OF 40 SAMPLES    11%
          2. CONTROL STD.               CONC=4.50 MG/L        ONCE/BLOCK OF 40 SAMPLES    7%
          3.
          4.
          5.

             INSTRUMENT AUDITS          AUDIT TYPE            AUDIT FREQUENCY             CONTROL LIMITS
             *****************          **********            ***************             **************
          1.
          2.
          3.
          4.
          5.

APPROXIMATE DETECTION LIMIT 0.05 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0.05 MG/L TO 10.0 MG/L

          PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB                       6 / 30 / 1977
                    QUALITY ASSURANCE DATA FOR                      TKN-SEDIMENT
-------------------------------------------------------------------------------------
METHOD STORET  PARAMETER           SAMPLE    METHOD
NUMBER NUMBER                      TYPE      DESCRIPTION                 *   *   METHOD REFERENCE
-------------------------------------------------------------------------------------
 440   00627   TKN-SEDIMENT        SEDIMENT  MICRO KJELDAHL
                                                                                 CAL PROC.
-------------------------------------------------------------------------------------
        PERFORMANCE AUDIT                    AUDIT FREQUENCY       CONTROL LIMITS
        (FOR TOTAL METHOD)                   (% OF ANALYSES)       SEE APP. 01 FOR CALCULATIONS
        **********************               *****************     **************************
        REAGENT BLANK                        ONCE/40 SAMPLES       0.05           MG/KG
        DUPLICATE ANALYSES                                                        RELATIVE PERCENT DIFFERENCE
        SPIKED SAMPLES                                                            % LOSS OR GAIN OF SPIKE
        LAB. CONTROL STANDARD                ONCE/40 SAMPLES       11%            RELATIVE PERCENT ERROR
        REFERENCE STANDARDS                                                       RELATIVE PERCENT ERROR

           PARTIAL METHOD AUDIT          AUDIT TYPE          AUDIT FREQUENCY             CONTROL LIMITS
           *********************         **********          ***************             *************
        1. LAB CONTROL STD.              CONC=2.25 MG/L      ONCE/BLOCK OF 40 SAMPLES    11% REL. % ERROR
        2. LAB CONTROL STD.              CONC=4.50 MG/L      ONCE/BLOCK OF 40 SAMPLES    7% REL. % ERROR
        3.
        4.
        5.

           INSTRUMENT AUDITS             AUDIT TYPE          AUDIT FREQUENCY             CONTROL LIMITS
           *****************             **********          ***************             *************
        1.
        2.
        3.
        4.
        5.

APPROXIMATE DETECTION LIMIT 0.05 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0.05 MG/KG TO 10.00 MG/KG

      PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL  REGION 5 LAB              6 / 30 / 1977
9
                  QUALITY  ASSURANCE  DATA  FOR               TOC-TOTAL

METHOD STORET  PARAMETER          SAMPLE   METHOD                                       *    *   METHOD REFERENCE
NUMBER NUMBER                     TYPE     DESCRIPTION

 471   00680   TOC-TOTAL          WATER    COMBUSTION-IR DETECTION                                  REF. 2-P234

          PERFORMANCE AUDIT                     AUDIT FREQUENCY             CONTROL LIMITS
          (FOR TOTAL METHOD)                    (% OF ANALYSES)             SEE APP. 01 FOR CALCULATIONS
          ******************                    ***************             ****************************
          REAGENT BLANK                         ONCE/DAY                    0.2           MG/L
          DUPLICATE ANALYSES                                                              RELATIVE PERCENT DIFFERENCE
          SPIKED SAMPLES                                                                  % LOSS OR GAIN OF SPIKE
          LAB CONTROL STANDARD                  ONCE/2 HR.                  5%            RELATIVE PERCENT ERROR
          REFERENCE STANDARDS                                                             RELATIVE PERCENT ERROR

              PARTIAL METHOD AUDIT          AUDIT TYPE            AUDIT FREQUENCY         CONTROL LIMITS
              ********************          **********            ***************         **************
          1.  LAB CONTROL STD.              CONC=80 MG/L          2 HRS.                  5% REL. % ERROR
          2.  LAB CONTROL STD.              CONC=60 MG/L          2 HRS.                  5% REL. % ERROR
          3.
          4.
          5.

              INSTRUMENT AUDITS             AUDIT TYPE            AUDIT FREQUENCY         CONTROL LIMITS
              *****************             **********            ***************         **************
          1.  GAIN                                                DAILY                   10% NORMAL VALUE
          2.
          3.
          4.
          5.

APPROXIMATE DETECTION LIMIT 2 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 2 MG/L TO 100 MG/L

     PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
9

QUALITY ASSURANCE DATA FOR TOC

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
474		TOC	SEDIMENT	WATER SUSPENSION FOLLOWED BY METHOD 477			

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS
******************	****************	*************************
REAGENT BLANK		
DUPLICATE ANALYSES		RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES		% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD		RELATIVE PERCENT ERROR
REFERENCE STANDARDS		RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	******************	**********	**************	*************
1.				
2.				
3.				
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	****************	**********	**************	*************
1.				
2.				
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM TO

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

J. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
9

QUALITY ASSURANCE DATA FOR DOC-NON-VOL

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
477		DOC-NON-VOL	WATER	PERSULFATE DIGEST-IR DETECTION			REF. 15

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	*****************	**************************	
REAGENT BLANK	ONCE/40 SAMPLES	0. 0. 02	MG/L
DUPLICATE ANALYSES	ONCE/5 SAMPLES	<100 INTEGRAT.	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD			RELATIVE PERCENT ERROR
REFERENCE STANDARDS	ONCE 40/SAMPLES	3	RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	*************
1.	LAB CONTROL STD.	7. 4 MG/L	ONCE/40 SAMPLES	3% REL. % ERROR
2.	LAB CONTROL STD.	6. 0 MG/L	ONCE/40 SAMPLES	3% REL. % ERROR
3.				
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	*************
1.				
2.				
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT 0. 2 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0. 2 MG/L TO 10 MG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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U. S. EPA CENTRAL REGION 5 LAB                 6 / 30 / 1977
9
                       QUALITY ASSURANCE DATA FOR              TURBIDITY
______________________________________________________________________________
METHOD STORET  PARAMETER             SAMPLE   METHOD                          *   #   METHOD REFERENCE
NUMBER NUMBER                        TYPE     DESCRIPTION
______________________________________________________________________________
 480   00076   TURBIDITY             WATER    NEPHELOMETRIC                            REF. 1-P132
______________________________________________________________________________

        PERFORMANCE AUDIT                   AUDIT FREQUENCY           CONTROL LIMITS
        (FOR TOTAL METHOD)                  (% OF ANALYSES)           SEE APP. #1 FOR CALCULATIONS
        ********************                *****************         *************************
        REAGENT BLANK                                                          JTU
        DUPLICATE ANALYSES                  EACH SAMPLE SET           +2 JTU OR 5%  RELATIVE PERCENT DIFFERENCE
        SPIKED SAMPLES                                                         % LOSS OR GAIN OF SPIKE
        LAB. CONTROL STANDARD                                                  RELATIVE PERCENT ERROR
        REFERENCE STANDARDS                                                    RELATIVE PERCENT ERROR

           PARTIAL METHOD AUDIT     AUDIT TYPE          AUDIT FREQUENCY     CONTROL LIMITS
           ********************     **********          ***************     **************
        1.
        2.
        3.
        4.
        5.

           INSTRUMENT AUDITS        AUDIT TYPE          AUDIT FREQUENCY     CONTROL LIMITS
           *****************        **********          ***************     **************
        1.
        2.
        3.
        4.
        5.
APPROXIMATE DETECTION LIMIT 1 JTU

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 1 JTU TO 1000 JTU

      PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977

QUALITY ASSURANCE DATA FOR SIEVE ANALYSIS

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
483		SIEVE ANALYSIS	SEDIMENT	STANDARD 6 FRACTION			ALT. TEST

PERFORMANCE AUDIT (FOR TOTAL METHOD) ********************	AUDIT FREQUENCY (% OF ANALYSES) *****************	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS *************************	
REAGENT BLANK	5	10	MG/KG
DUPLICATE ANALYSES	5	50%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	5	50%	% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD			RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT ********************	AUDIT TYPE **********	AUDIT FREQUENCY ***************	CONTROL LIMITS **************
1.				
2.				
3.				
4.				
5.				

	INSTRUMENT AUDITS *****************	AUDIT TYPE **********	AUDIT FREQUENCY ***************	CONTROL LIMITS **************
1.				
2.				
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT 10 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 10 MG/KG TO 1000 MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
9

QUALITY ASSURANCE DATA FOR LEAD

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
485		LEAD	AIR	HI-VOL FILTER EXT.-AA ANALYSES	Y	Y	REF. 20

PERFORMANCE AUDIT (FOR TOTAL METHOD) ********************	AUDIT FREQUENCY (% OF ANALYSES) *****************	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS **************************	
REAGENT BLANK	5	30 UG/FILTER	
DUPLICATE ANALYSES	5	5	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD			RELATIVE PERCENT ERROR
REFERENCE STANDARDS	QUARTERLY	10	RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT ********************	AUDIT TYPE **********	AUDIT FREQUENCY ***************	CONTROL LIMITS **************
1.	SIMILARITY OF FILTERS		EACH RUN	10% RSD
2.	LIGHT SCATTER	WAVELENGTH(217)	5%	5% OF 283 VALUE
3.				
4.				
5.				

	INSTRUMENT AUDITS *****************	AUDIT TYPE **********	AUDIT FREQUENCY ***************	CONTROL LIMITS **************
1.	HI-VOL	CALIBRATION	SEMI-ANNUALLY	
2.	AA	CALIBRATION	EACH RUN	10%(SLOPE & INTERCEPT)
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM TO

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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U. S. EPA CENTRAL REGION 5 LAB               6 / 30 / 1977
                         QUALITY ASSURANCE DATA FOR        OZONE
-----------------------------------------------------------------------------------
METHOD STORET  PARAMETER          SAMPLE   METHOD                        *   *  METHOD REFERENCE
NUMBER NUMBER                     TYPE     DESCRIPTION
-----------------------------------------------------------------------------------
 486           OZONE              AIR      CONTINUOUS MONITOR            Y   Y  REF. 13
-----------------------------------------------------------------------------------

          PERFORMANCE AUDIT                  AUDIT FREQUENCY          CONTROL LIMITS
          (FOR TOTAL METHOD)                 (% OF ANALYSES)          SEE APP. #1 FOR CALCULATIONS
          ********************               *****************        *************************
          REAGENT BLANK                      5                        0.01       PPM
          DUPLICATE ANALYSES                 5                        3          RELATIVE PERCENT DIFFERENCE
          SPIKED SAMPLES                     5                        3          % LOSS OR GAIN OF SPIKE
          LAB. CONTROL STANDARD                                                  RELATIVE PERCENT ERROR
          REFERENCE STANDARDS                                                    RELATIVE PERCENT ERROR

             PARTIAL METHOD AUDIT    AUDIT TYPE            AUDIT FREQUENCY       CONTROL LIMITS
             ********************    **********            ***************       *************
          1. DUPLICATE                                                           0.01 + 0.075X
          2.
          3.
          4.
          5.

             INSTRUMENT AUDITS       AUDIT TYPE            AUDIT FREQUENCY       CONTROL LIMITS
             *****************       **********            ***************       *************
          1.
          2.
          3.
          4.
          5.

APPROXIMATE DETECTION LIMIT 0.01 PPM

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0.01 PPM TO 0.4 PPM

          PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977

QUALITY ASSURANCE DATA FOR NITROGEN OXIDES

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
409		NITROGEN OXIDES	AIR	GAS BUBBLER	Y	Y	REF. 17

PERFORMANCE AUDIT (FOR TOTAL METHOD) ********************	AUDIT FREQUENCY (% OF ANALYSES) *****************	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS *************************	
REAGENT BLANK	5	50%	MG/KG
DUPLICATE ANALYSES	5	50	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	5	50	% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD			RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT ********************	AUDIT TYPE **********	AUDIT FREQUENCY ***************	CONTROL LIMITS **************
1.				
2.				
3.				
4.				
5.				

	INSTRUMENT AUDITS *****************	AUDIT TYPE **********	AUDIT FREQUENCY ***************	CONTROL LIMITS **************
1.				
2.				
3.				
4.				
5.				

196<

APPROXIMATE DETECTION LIMIT 1 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 1 MG/KG TO 50 MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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U. S. EPA CENTRAL REGION 5 LAB              6 / 30 / 1977
                      QUALITY ASSURANCE DATA FOR          NITROGEN OXIDES

METHOD STORET  PARAMETER          SAMPLE   METHOD                                     *   #   METHOD REFERENCE
NUMBER NUMBER                     TYPE     DESCRIPTION

 492           NITROGEN OXIDES    AIR      CONTINUOUS MONITOR

          PERFORMANCE AUDIT                AUDIT FREQUENCY          CONTROL LIMITS
          (FOR TOTAL METHOD)               (% OF ANALYSES)          SEE APP. #1 FOR CALCULATIONS
          ********************             *****************        ***************************
          REAGENT BLANK
          DUPLICATE ANALYSES                                                       RELATIVE PERCENT DIFFERENCE
          SPIKED SAMPLES                                                           % LOSS OR GAIN OF SPIKE
          LAB. CONTROL STANDARD                                                    RELATIVE PERCENT ERROR
          REFERENCE STANDARDS                                                      RELATIVE PERCENT ERROR

               PARTIAL METHOD AUDIT    AUDIT TYPE          AUDIT FREQUENCY         CONTROL LIMITS
               ********************    **********          ***************         **************
          1.
          2.
          3.
          4.
          5.

               INSTRUMENT AUDITS       AUDIT TYPE          AUDIT FREQUENCY         CONTROL LIMITS
               *****************       **********          ***************         **************
          1.
          2.
          3.
          4.
          5.

APPROXIMATE DETECTION LIMIT

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM   TO

          PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB                  6 / 30 / 1977
              QUALITY ASSURANCE DATA FOR                       SULFUR DIOXIDE
-----------------------------------------------------------------------
METHOD STORET PARAMETER          SAMPLE  METHOD
NUMBER NUMBER                    TYPE    DESCRIPTION                 *   #   METHOD REFERENCE
 495          SULFUR DIOXIDE     AIR     GAS BUBBLER
-----------------------------------------------------------------------
                                                                     N   N . REF. 17
-----------------------------------------------------------------------
      PERFORMANCE AUDIT                AUDIT FREQUENCY
      (FOR TOTAL METHOD)               (% OF ANALYSES)        CONTROL LIMITS
      ********************             ****************       SEE APP. #1 FOR CALCULATIONS
      REAGENT BLANK                                           **************************
      DUPLICATE ANALYSES                                               MG/KG
      SPIKED SAMPLES                                                   RELATIVE PERCENT DIFFERENCE
      LAB. CONTROL STANDARD                                            % LOSS OR GAIN OF SPIKE
      REFERENCE STANDARDS                                              RELATIVE PERCENT ERROR
                                                                       RELATIVE PERCENT ERROR
         PARTIAL METHOD AUDIT      AUDIT TYPE           AUDIT FREQUENCY      CONTROL LIMITS
         ********************      **********           ***************      **************
      1.
      2.
      3.
      4.
      5.

         INSTRUMENT AUDITS         AUDIT TYPE           AUDIT FREQUENCY      CONTROL LIMITS
         *****************         **********           ***************      **************
      1. LEAK CHECKS                                    EVERY RUN
      2. ORIFICE CALIBRATION       FLOW RATE            EVERY RUN
      3.
      4.
      5.

APPROXIMATE DETECTION LIMIT 1 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 1 MG/KG TO 50 MG/KG

     PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
9

QUALITY ASSURANCE DATA FOR SULFUR DIOXIDE

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	*	METHOD REFERENCE
490		SULFUR DIOXIDE	AIR	CONTINUOUS MONITOR			

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS
*********************	*****************	**************************
REAGENT BLANK		
DUPLICATE ANALYSES		RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES		% LOSS OR GAIN OF SPIKE
LAB CONTROL STANDARD		RELATIVE PERCENT ERROR
REFERENCE STANDARDS		RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*********************	**********	***************	**************
1.				
2.				
3.				
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.				
2.				
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM TO

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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U. S. EPA CENTRAL REGION 5 LAB                    6 / 30 / 1977
9
                 QUALITY ASSURANCE DATA FOR              T. SUSP. PART.
-----------------------------------------------------------------------------
METHOD STORET  PARAMETER          SAMPLE   METHOD                             *   @   METHOD REFERENCE
NUMBER NUMBER                     TYPE     DESCRIPTION
-----------------------------------------------------------------------------
 501           T. SUSP. PART.     AIR      HI-VOL                             Y   Y   REF. 16
-----------------------------------------------------------------------------

           PERFORMANCE AUDIT                 AUDIT FREQUENCY          CONTROL LIMITS
           (FOR TOTAL METHOD)                (% OF ANALYSES)          SEE APP. #1 FOR CALCULATIONS
           ********************              ****************         **************************
           REAGENT BLANK                     5                        2        MG/KG
           DUPLICATE ANALYSES                5                        50%      RELATIVE PERCENT DIFFERENCE
           SPIKED SAMPLES                    5                        50%      % LOSS OR GAIN OF SPIKE
           LAB CONTROL STANDARD                                                RELATIVE PERCENT ERROR
           REFERENCE STANDARDS                                                 RELATIVE PERCENT ERROR

              PARTIAL METHOD AUDIT      AUDIT TYPE          AUDIT FREQUENCY    CONTROL LIMITS
              ********************      **********          ***************    **************
           1.
           2.
           3.
           4.
           5.

              INSTRUMENT AUDITS         AUDIT TYPE          AUDIT FREQUENCY    CONTROL LIMITS
              *****************         **********          ***************    **************
           1.
           2.
           3.
           4.
           5.

APPROXIMATE DETECTION LIMIT 2 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 2 MG/KG TO 200 MG/KG

      PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB              6 / 30 / 1977
9
                  QUALITY ASSURANCE DATA FOR           ALUMINUM

METHOD STORET  PARAMETER            SAMPLE   METHOD                                      *    *   METHOD REFERENCE
NUMBER NUMBER                       TYPE     DESCRIPTION

 304   01105   ALUMINUM             WATER    ICAP                                                  12

         PERFORMANCE AUDIT                   AUDIT FREQUENCY             CONTROL LIMITS
         (FOR TOTAL METHOD)                  (% OF ANALYSES)             SEE APP.#1 FOR CALCULATIONS
         ********************                *****************           **************************
         REAGENT BLANK                       20%                         3.5%         UG/L
         DUPLICATE ANALYSES                  10%                         3.5%         RELATIVE PERCENT DIFFERENCE
         SPIKED SAMPLES                      10%                         10%          % LOSS OR GAIN OF SPIKE
         LAB.CONTROL STANDARD                20%                         3.5          RELATIVE PERCENT ERROR
         REFERENCE STANDARDS                 AS REQUESTED                3.5          RELATIVE PERCENT ERROR

             PARTIAL METHOD AUDIT     AUDIT TYPE          AUDIT FREQUENCY     CONTROL LIMITS
             ********************     **********          ***************     **************
         1.
         2.
         3.
         4.
         5.

             INSTRUMENT AUDITS        AUDIT TYPE          AUDIT FREQUENCY     CONTROL LIMITS
             *****************        **********          ***************     **************
         1.  ELECTRONICS              INTERNAL STANDARD   EVERY SAMPLE        1%
         2.  ELECTRONICS              DARK CURRENTS       WEEKLY              3%
         3.  SYSTEM CHECK             WHITE LIGHT         WEEKLY              3%
         4.  SYSTEM CHECK             DETECTION LIMITS    WEEKLY              20%
         5.

APPROXIMATE DETECTION LIMIT 50 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 200 UG/L TO 10000 UG/L

        PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977

QUALITY ASSURANCE DATA FOR BARIUM

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
307	01007	BARIUM	WATER	ICAP			REF. 12

PERFORMANCE AUDIT (FOR TOTAL METHOD) **********************	AUDIT FREQUENCY (% OF ANALYSES) ******************	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS **************************	
REAGENT BLANK	20%	1.0%	UG/L
DUPLICATE ANALYSES	10%	3.5%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	10%	10%	% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	20%	3.5	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	AS REQUESTED	3.5	RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT **********************	AUDIT TYPE **********	AUDIT FREQUENCY ***************	CONTROL LIMITS **************
1.				
2.				
3.				
4.				
5.				

	INSTRUMENT AUDITS *****************	AUDIT TYPE **********	AUDIT FREQUENCY ***************	CONTROL LIMITS **************
1.	ELECTRONICS	INTERNAL STANDARD	EVERY SAMPLE	1%
2.	ELECTRONICS	DARK CURRENTS	WEEKLY	3%
3.	SYSTEM CHECK	WHITE LIGHT	WEEKLY	3%
4.	SYSTEM CHECK	DETECTION LIMITS	WEEKLY	20%
5.				

APPROXIMATE DETECTION LIMIT 1 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 5 UG/L TO 10000 UG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE, COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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U. S. EPA CENTRAL REGION 5 LAB              6 / 30 / 1977
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                      QUALITY ASSURANCE DATA FOR          BERYLLIUM
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METHOD STORET  PARAMETER        SAMPLE   METHOD                       *   #   METHOD REFERENCE
NUMBER NUMBER                   TYPE     DESCRIPTION
---------------------------------------------------------------------------------------
 510   02201   BERYLLIUM        WATER    ICAP                                 12
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          PERFORMANCE AUDIT              AUDIT FREQUENCY          CONTROL LIMITS
          (FOR TOTAL METHOD)             (% OF ANALYSES)          SEE APP. #1 FOR CALCULATIONS
          *******************            *****************        ***************************
          REAGENT BLANK                  20%                      3.5%     UG/L
          DUPLICATE ANALYSES             10%                      3.5%     RELATIVE PERCENT DIFFERENCE
          SPIKED SAMPLES                 10%                      10%      % LOSS OR GAIN OF SPIKE
          LAB CONTROL STANDARD           20%                      3.5      RELATIVE PERCENT ERROR
          REFERENCE STANDARDS            AS REQUESTED             3.5      RELATIVE PERCENT ERROR

               PARTIAL METHOD AUDIT   AUDIT TYPE          AUDIT FREQUENCY     CONTROL LIMITS
               ********************   **********          ***************     **************
          1.
          2.
          3.
          4.
          5.

               INSTRUMENT AUDITS      AUDIT TYPE          AUDIT FREQUENCY     CONTROL LIMITS
               *****************      **********          ***************     **************
          1.   ELECTRONICS            INTERNAL STANDARD   EVERY SAMPLE        1%
          2.   ELECTRONICS            DARK CURRENTS       WEEKLY              3%
          3.   SYSTEM CHECK           WHITE LIGHT         WEEKLY              3%
          4.   SYSTEM CHECK           DETECTION LIMITS    WEEKLY              20%
          5.

APPROXIMATE DETECTION LIMIT 1 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 5 UG/L TO 10000 UG/L

          PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB                  6 / 30 / 1977
9                 QUALITY ASSURANCE DATA FOR                 BORON
                                                               *    #   METHOD REFERENCE
METHOD STORET  PARAMETER               SAMPLE    METHOD
NUMBER NUMBER                          TYPE      DESCRIPTION
                                                                        12
 513   01022   BORON                   WATER     ICAP

        PERFORMANCE AUDIT                  AUDIT FREQUENCY           CONTROL LIMITS
        (FOR TOTAL METHOD)                 (% OF ANALYSES)           SEE APP. #1 FOR CALCULATIONS
        ********************               *****************         ************************.******
        REAGENT BLANK                      20%                       3.5%        UG/L
        DUPLICATE ANALYSES                 10%                       3.5%        RELATIVE PERCENT DIFFERENCE
        SPIKED SAMPLES                     10%                       10%         % LOSS OR GAIN OF SPIKE
        LAB. CONTROL STANDARD              20%                       3.5         RELATIVE PERCENT ERROR
        REFERENCE STANDARDS                AS REQUESTED              3.5         RELATIVE PERCENT ERROR

           PARTIAL METHOD AUDIT       AUDIT TYPE           AUDIT FREQUENCY        CONTROL LIMITS
           ********************       **********           ***************        **************
      1.
      2.
      3.
      4.
      5.

           INSTRUMENT AUDITS          AUDIT TYPE           AUDIT FREQUENCY        CONTROL LIMITS
           *****************          **********           ***************        **************
      1.   ELECTRONICS                INTERNAL STANDARD    EVERY SAMPLE           1%
      2.   ELECTRONICS                DARK CURRENTS        WEEKLY                 3%
      3.   SYSTEM CHECK               WHITE LIGHT          WEEKLY                 3%
      4.   SYSTEM CHECK               DETECTION LIMITS     WEEKLY                 20%
      5.

APPROXIMATE DETECTION LIMIT 5 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 20 UG/L TO 10000 UG/L

     PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB                    6 / 30 / 1977
 9
                       QUALITY ASSURANCE DATA FOR             CADMIUM
------------------------------------------------------------------------------
METHOD STORET  PARAMETER          SAMPLE   METHOD                       *    #    METHOD REFERENCE
NUMBER NUMBER                     TYPE     DESCRIPTION
------------------------------------------------------------------------------
 516   01027   CADMIUM            WATER    ICAP                                   12
------------------------------------------------------------------------------

      PERFORMANCE AUDIT                  AUDIT FREQUENCY            CONTROL LIMITS
      (FOR TOTAL METHOD)                 (% OF ANALYSES)            SEE APP. #1 FOR CALCULATIONS
      ********************               *****************          *************************
      REAGENT BLANK                      20%                        3.5%       UG/L
      DUPLICATE ANALYSES                 10%                        3.5%       RELATIVE PERCENT DIFFERENCE
      SPIKED SAMPLES                     10%                        10%        % LOSS OR GAIN OF SPIKE
      LAB CONTROL STANDARD               20%                        3.5        RELATIVE PERCENT ERROR
      REFERENCE STANDARDS                AS REQUESTED               3.5        RELATIVE PERCENT ERROR

         PARTIAL METHOD AUDIT        AUDIT TYPE        AUDIT FREQUENCY      CONTROL LIMITS
         ********************        **********        ***************      **************
      1.
      2.
      3.
      4.
      5.

         INSTRUMENT AUDITS           AUDIT TYPE        AUDIT FREQUENCY      CONTROL LIMITS
         *****************           **********        ***************      **************
      1. ELECTRONICS                 INTERNAL STANDARD EVERY SAMPLE         1%
      2. ELECTRONICS                 DARK CURRENTS     WEEKLY               3%
      3. SYSTEM CHECK                WHITE LIGHT       WEEKLY               3%
      4. SYSTEM CHECK                DETECTION LIMITS  WEEKLY               20%
      5.

APPROXIMATE DETECTION LIMIT 2 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 10 UG/L TO 10000 UG/L

      PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977

QUALITY ASSURANCE DATA FOR CALCIUM

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	*	METHOD REFERENCE
519	00916	CALCIUM	WATER	ICAP			12

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	*****************	*************************	
REAGENT BLANK	20%	3.5%	MG/L
DUPLICATE ANALYSES	10%	3.5%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	10%	10%	% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	20%	3.5	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	AS REQUESTED	3.5	RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.				
2.				
3.				
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.	ELECTRONICS	INTERNAL STANDARD	EVERY SAMPLE	1%
2.	ELECTRONICS	DARK CURRENTS	WEEKLY	3%
3.	SYSTEM CHECK	WHITE LIGHT	WEEKLY	3%
4.	SYSTEM CHECK	DETECTION LIMITS	WEEKLY	20%
5.				

APPROXIMATE DETECTION LIMIT .001 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0.005 MG/L TO 500 MG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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U. S. EPA CENTRAL REGION 5 LAB                 6 / 30 / 1977
9
                   QUALITY ASSURANCE DATA FOR          CHROMIUM
____________________________________________________________________________
METHOD STORET  PARAMETER            SAMPLE   METHOD                   *  #  METHOD REFERENCE
NUMBER NUMBER                       TYPE     DESCRIPTION
____________________________________________________________________________
 522   01034   CHROMIUM             WATER    ICAP                    YES YES 12
____________________________________________________________________________

     PERFORMANCE AUDIT                  AUDIT FREQUENCY          CONTROL LIMITS
     (FOR TOTAL METHOD)                 (% OF ANALYSES)          SEE APP. #1 FOR CALCULATIONS
     ********************               *****************        ***************************
     REAGENT BLANK                      20%                      3.5%       UG/L
     DUPLICATE ANALYSES                 10%                      3.5%       RELATIVE PERCENT DIFFERENCE
     SPIKED SAMPLES                     10%                      10%        % LOSS OR GAIN OF SPIKE
     LAB CONTROL STANDARD               20%                      3.5        RELATIVE PERCENT ERROR
     REFERENCE STANDARDS                AS REQUESTED             3.5        RELATIVE PERCENT ERROR

          PARTIAL METHOD AUDIT     AUDIT TYPE          AUDIT FREQUENCY     CONTROL LIMITS
          ********************     **********          ***************     **************
     1.
     2.
     3.
     4.
     5.

          INSTRUMENT AUDITS        AUDIT TYPE          AUDIT FREQUENCY     CONTROL LIMITS
          *****************        **********          ***************     **************
     1.   ELECTRONICS              INTERNAL STANDARD   EVERY SAMPLE        1%
     2.   ELECTRONICS              DARK CURRENTS       WEEKLY              3%
     3.   SYSTEM CHECK             WHITE LIGHT         WEEKLY              3%
     4.   SYSTEM CHECK             DETECTION LIMITS    WEEKLY              20%
     5.

APPROXIMATE DETECTION LIMIT 1 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 5 UG/L TO 10000 UG/L

     PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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J. S. EPA CENTRAL REGION 5 LAB                  6 / 30 / 1977
9
                     QUALITY ASSURANCE DATA FOR             COBALT

METHOD STORET  PARAMETER            SAMPLE   METHOD                                    *   *   METHOD REFERENCE
NUMBER NUMBER                       TYPE     DESCRIPTION

 525   01037   COBALT               WATER    ICAP                                              12

          PERFORMANCE AUDIT                  AUDIT FREQUENCY              CONTROL LIMITS
          (FOR TOTAL METHOD)                 (% OF ANALYSES)              SEE APP. #1 FOR CALCULATIONS
          ********************               ****************             ***************************
          REAGENT BLANK                      20%                          3.5%       UG/L
          DUPLICATE ANALYSES                 10%                          3.5%       RELATIVE PERCENT DIFFERENCE
          SPIKED SAMPLES                     10%                          10%        % LOSS OR GAIN OF SPIKE
          LAB CONTROL STANDARD               20%                          3.5        RELATIVE PERCENT ERROR
          REFERENCE STANDARDS                AS REQUESTED                 3.3        RELATIVE PERCENT ERROR

             PARTIAL METHOD AUDIT      AUDIT TYPE         AUDIT FREQUENCY     CONTROL LIMITS
             ********************      **********         ***************     **************
          1.
          2.
          3.
          4.
          5.

             INSTRUMENT AUDITS         AUDIT TYPE         AUDIT FREQUENCY     CONTROL LIMITS
             *****************         **********         ***************     **************
          1. ELECTRONICS               INTERNAL STANDARDS EVERY SAMPLE        1%
          2. ELECTRONICS               DARK CURRENTS      WEEKLY              3%
          3. SYSTEM CHECK              WHITE LIGHT        WEEKLY              3%
          4. SYSTEM CHECK              DETECTION LIMITS   WEEKLY              20%
          5.

APPROXIMATE DETECTION LIMIT 4 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 20 UG/L TO 10000 UG/L

          PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
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QUALITY ASSURANCE DATA FOR COPPER

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METHOD STORET  PARAMETER          SAMPLE   METHOD                                       *   *   METHOD REFERENCE
NUMBER NUMBER                     TYPE     DESCRIPTION
 528   01042   COPPER             WATER    ICAP                                                 12

         PERFORMANCE AUDIT                 AUDIT FREQUENCY         CONTROL LIMITS
         (FOR TOTAL METHOD)                (% OF ANALYSES)         SEE APP.#1 FOR CALCULATIONS
         ********************              *****************       **************************
         REAGENT BLANK                     20%                     3.5%         UG/L
         DUPLICATE ANALYSES                10%                     3.5%         RELATIVE PERCENT DIFFERENCE
         SPIKED SAMPLES                    10%                     10%          % LOSS OR GAIN OF SPIKE
         LAB CONTROL STANDARD              20%                     3.5          RELATIVE PERCENT ERROR
         REFERENCE STANDARDS               AS REQUESTED            3.5          RELATIVE PERCENT ERROR

              PARTIAL METHOD AUDIT     AUDIT TYPE          AUDIT FREQUENCY    CONTROL LIMITS
              ********************     **********          ***************    **************
         1.
         2.
         3.
         4.
         5.

              INSTRUMENT AUDITS        AUDIT TYPE          AUDIT FREQUENCY    CONTROL LIMITS
              *****************        **********          ***************    **************
         1.   ELECTRONICS              INTERNAL STANDARD   EVERY SAMPLE       1%
         2.   ELECTRONICS              DARK CURRENTS       WEEKLY             3%
         3.   SYSTEM CHECK             WHITE LIGHT         WEEKLY             3%
         4.   SYSTEM CHECK             DETECTION LIMITS    WEEKLY             20%
         5.

APPROXIMATE DETECTION LIMIT 1 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 5 UG/L TO 10000 UG/L

         PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977

QUALITY ASSURANCE DATA FOR IRON

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	*	METHOD REFERENCE
331	01045	IRON	WATER	ICAP			12

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP.#1 FOR CALCULATIONS	
*********************	******************	*************************	
REAGENT BLANK	20%	3.5%	UG/L
DUPLICATE ANALYSES	10%	3.5%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	10%	10%	% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	20%	3.5	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	AS REQUESTED	3.5	RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*********************	**********	***************	**************
1.				
2.				
3.				
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	******************	**********	***************	**************
1.	ELECTRONICS	INTERNAL STANDARD	EVERY SAMPLE	1%
2.	ELECTRONICS	DARK CURRENTS	WEEKLY	3%
3.	SYSTEM CHECK	WHITE LIGHT	WEEKLY	3%
4.	SYSTEM CHECK	DETECTION LIMITS	WEEKLY	20%
5.				

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APPROXIMATE DETECTION LIMIT 2 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 10 UG/L TO 10000 UG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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U. S. EPA CENTRAL REGION 5 LAB                    6 / 30 / 1977
                 QUALITY ASSURANCE DATA FOR              LEAD

METHOD STORET  PARAMETER          SAMPLE   METHOD                                  *   #   METHOD REFERENCE
NUMBER NUMBER                     TYPE     DESCRIPTION

 534   01051   LEAD               WATER    ICAP                                            12

        PERFORMANCE AUDIT                  AUDIT FREQUENCY           CONTROL LIMITS
        (FOR TOTAL METHOD)                 (% OF ANALYSES)           SEE APP. #1 FOR CALCULATIONS
        ********************               ****************          ************************
        REAGENT BLANK                      20%                       3.5%     UG/L
        DUPLICATE ANALYSES                 10%                       3.5%     RELATIVE PERCENT DIFFERENCE
        SPIKED SAMPLES                     10%                       10%      % LOSS OR GAIN OF SPIKE
        LAB CONTROL STANDARD               20%                       3.5      RELATIVE PERCENT ERROR
        REFERENCE STANDARDS                AS REQUESTED              3.5      RELATIVE PERCENT ERROR

           PARTIAL METHOD AUDIT         AUDIT TYPE            AUDIT FREQUENCY       CONTROL LIMITS
           ********************         **********            ***************       **************
        1.
        2.
        3.
        4.
        5.

           INSTRUMENT AUDITS            AUDIT TYPE            AUDIT FREQUENCY       CONTROL LIMITS
           *****************            **********            ***************       **************
        1. ELECTRONICS                  INTERNAL STANDARDS    EVERY SAMPLE          1%
        2. ELECTRONICS                  DARK CURRENTS         WEEKLY                3%
        3. SYSTEM CHECK                 WHITE LIGHT           WEEKLY                3%
        4. SYSTEM CHECK                 DETECTION LIMITS      WEEKLY                20%
        5.

APPROXIMATE DETECTION LIMIT 12 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 60 UG/L TO 10000 UG/L

        PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB                6 / 30 / 1977
9
                     QUALITY ASSURANCE DATA FOR              MAGNESIUM

METHOD STORET  PARAMETER           SAMPLE   METHOD                                            *   #   METHOD REFERENCE
NUMBER NUMBER                      TYPE     DESCRIPTION
 337   00927   MAGNESIUM           WATER    ICAP                                                      12

           PERFORMANCE AUDIT                  AUDIT FREQUENCY             CONTROL LIMITS
           (FOR TOTAL METHOD)                 (% OF ANALYSES)             SEE APP. #1 FOR CALCULATIONS
           ********************               ****************            ************************
           REAGENT BLANK                      20%                         3.5%          MG/L
           DUPLICATE ANALYSES                 10%                         3.5%          RELATIVE PERCENT DIFFERENCE
           SPIKED SAMPLES                     10%                         10%           % LOSS OR GAIN OF SPIKE
           LAB. CONTROL STANDARD              20%                         3.5           RELATIVE PERCENT ERROR
           REFERENCE STANDARDS                AS REQUESTED                3.5           RELATIVE PERCENT ERROR

              PARTIAL METHOD AUDIT         AUDIT TYPE           AUDIT FREQUENCY        CONTROL LIMITS
              ********************         **********           ***************        **************
        1.
        2.
        3.
        4.
        5.

              INSTRUMENT AUDITS            AUDIT TYPE           AUDIT FREQUENCY        CONTROL LIMITS
              *****************            **********           ***************        **************
        1.    ELECTRONICS                  INTERNAL STANDARD    EVERY SAMPLE           1%
        2.    ELECTRONICS                  DARK CURRENTS        WEEKLY                 3%
        3.    SYSTEM CHECK                 WHITE LIGHT          WEEKLY                 3%
        4.    SYSTEM CHECK                 DETECTION LIMITS     WEEKLY                 20%
        5.

APPROXIMATE DETECTION LIMIT 0.001 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0.005 MG/L TO 500 MG/L

     PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL  REGION 5 LAB            6 / 30 / 1977
9
                   QUALITY  ASSURANCE  DATA  FOR          MANGANESE

METHOD STORET  PARAMETER           SAMPLE   METHOD                                      *    #    METHOD REFERENCE
NUMBER NUMBER                      TYPE     DESCRIPTION

 340   01055   MANGANESE           WATER    ICAP                                                  12

          PERFORMANCE AUDIT                 AUDIT FREQUENCY                 CONTROL LIMITS
          (FOR TOTAL METHOD)                (% OF ANALYSES)                 SEE APP. 01 FOR CALCULATIONS
          *******************               ****************                ***************************
          REAGENT BLANK                     20%                             3.5%          UG/L
          DUPLICATE ANALYSES                10%                             3.5%          RELATIVE PERCENT DIFFERENCE
          SPIKED SAMPLES                    10%                             10%           % LOSS OR GAIN OF SPIKE
          LAB CONTROL STANDARD              20%                             3.5%          RELATIVE PERCENT ERROR
          REFERENCE STANDARDS               AS REQUESTED                    3.5           RELATIVE PERCENT ERROR

               PARTIAL METHOD AUDIT      AUDIT TYPE                 AUDIT FREQUENCY           CONTROL LIMITS
               ********************      **********                 ***************           **************
          1.
          2.
          3.
          4.
          5.

               INSTRUMENT AUDITS         AUDIT TYPE                 AUDIT FREQUENCY           CONTROL LIMITS
               *****************         **********                 ***************           **************
          1.   ELECTRONICS               INTERNAL STANDARD          EVERY SAMPLE              1%
          2.   ELECTRONICS               DARK CURRENTS              WEEKLY                    3%
          3.   SYSTEM CHECK              WHITE LIGHT                WEEKLY                    3%
          4.   SYSTEM CHECK              DETECTION LIMITS           WEEKLY                    20%
          5.

APPROXIMATE DETECTION LIMIT 1 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 5 UG/L TO 10000 UG/L

          PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB              6 / 30 / 1977
                    QUALITY ASSURANCE DATA FOR          MOLYBDENUM
------------------------------------------------------------------------------------------
METHOD STORET  PARAMETER          SAMPLE   METHOD                         *    *   METHOD REFERENCE
NUMBER NUMBER                     TYPE     DESCRIPTION
------------------------------------------------------------------------------------------
 543   01042   MOLYBDENUM         WATER    ICAP                                     12
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        PERFORMANCE AUDIT                   AUDIT FREQUENCY              CONTROL LIMITS
        (FOR TOTAL METHOD)                  (% OF ANALYSES)              SEE APP. 01 FOR CALCULATIONS
        ********************                ******************           **************************
        REAGENT BLANK                       20%                          3.5%        UG/L
        DUPLICATE ANALYSES                  10%                          3.5%        RELATIVE PERCENT DIFFERENCE
        SPIKED SAMPLES                      10%                          10%         % LOSS OR GAIN OF SPIKE
        LAB. CONTROL STANDARD               20%                          3.5         RELATIVE PERCENT ERROR
        REFERENCE STANDARDS                 AS REQUESTED                 3.5         RELATIVE PERCENT ERROR

           PARTIAL METHOD AUDIT        AUDIT TYPE            AUDIT FREQUENCY           CONTROL LIMITS
           ********************        **********            ***************           **************
        1.
        2.
        3.
        4.
        5.

           INSTRUMENT AUDITS           AUDIT TYPE            AUDIT FREQUENCY           CONTROL LIMITS
           *****************           **********            ***************           **************
        1. ELECTRONICS                 INTERNAL STANDARD     EVERY SAMPLE              1%
        2. ELECTRONICS                 DARK CURRENTS         WEEKLY                    3%
        3. SYSTEM CHECK                WHITE LIGHT           WEEKLY                    3%
        4. SYSTEM CHECK                DETECTION LIMITS      WEEKLY                    20%
        5.

APPROXIMATE DETECTION LIMIT 5 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 25 UG/L TO 10000 UG/L

      PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB                    6 / 30 / 1977
                        QUALITY ASSURANCE DATA FOR          NICKEL

METHOD STORET  PARAMETER            SAMPLE   METHOD                                        *   #   METHOD REFERENCE
NUMBER NUMBER                       TYPE     DESCRIPTION

 546   01067   NICKEL               WATER    ICAP                                                  12

        PERFORMANCE AUDIT                  AUDIT FREQUENCY          CONTROL LIMITS
        (FOR TOTAL METHOD)                 (% OF ANALYSES)          SEE APP. #1 FOR CALCULATIONS
        *********************              ***************          *************************
        REAGENT BLANK                      20%                      3.5%          UG/L
        DUPLICATE ANALYSES                 10%                      3.5%          RELATIVE PERCENT DIFFERENCE
        SPIKED SAMPLES                     10%                      10%           % LOSS OR GAIN OF SPIKE
        LAB. CONTROL STANDARD              20%                      3.5           RELATIVE PERCENT ERROR
        REFERENCE STANDARDS                AS REQUESTED             3.5           RELATIVE PERCENT ERROR

            PARTIAL METHOD AUDIT     AUDIT TYPE          AUDIT FREQUENCY     CONTROL LIMITS
            ********************     **********          ***************     **************
        1.
        2.
        3.
        4.
        5.

            INSTRUMENT AUDITS        AUDIT TYPE          AUDIT FREQUENCY     CONTROL LIMITS
            *****************        **********          ***************     **************
215<    1.  ELECTRONICS              INTERNAL STANDARD   EVERY SAMPLE        1%
        2.  ELECTRONICS              DARK CURRENTS       WEEKLY              3%
        3.  SYSTEM CHECK             WHITE LIGHT         WEEKLY              3%
        4.  SYSTEM CHECK             DETECTION LIMITS    WEEKLY              20%
        5.

APPROXIMATE DETECTION LIMIT 15 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 75 UG/L TO 10000 UG/L

      PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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J. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
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QUALITY ASSURANCE DATA FOR POTASSIUM

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	*	METHOD REFERENCE
549		POTASSIUM	WATER	ICAP			12

PERFORMANCE AUDIT (FOR TOTAL METHOD) ********************	AUDIT FREQUENCY (% OF ANALYSES) *****************	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS **************************	
REAGENT BLANK	20%	3.5%	MG/L
DUPLICATE ANALYSES	10%	3.5%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	10%	10%	% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	20%	3.5	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	AS REQUESTED	3.5	RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT ********************	AUDIT TYPE **********	AUDIT FREQUENCY ***************	CONTROL LIMITS **************
1.				
2.				
3.				
4.				
5.				

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	INSTRUMENT AUDITS *****************	AUDIT TYPE **********	AUDIT FREQUENCY ***************	CONTROL LIMITS **************
1.	ELECTRONICS	INTERNAL STANDARD	EVERY SAMPLE	1%
2.	ELECTRONICS	DARK CURRENTS	WEEKLY	3%
3.	SYSTEM CHECK	WHITE LIGHT	WEEKLY	3%
4.	SYSTEM CHECK	DETECTION LIMITS	WEEKLY	20%
5.				

APPROXIMATE DETECTION LIMIT 0.2 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 1 MG/L TO 500 MG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
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QUALITY ASSURANCE DATA FOR SILVER

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	*	METHOD REFERENCE
302	01077	SILVER	WATER	ICAP			12

PERFORMANCE AUDIT (FOR TOTAL METHOD) ********************	AUDIT FREQUENCY (% OF ANALYSES) ******************	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS ****************************	
REAGENT BLANK	20%	3.5%	UG/L
DUPLICATE ANALYSES	10%	3.5%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	10%	10%	% LOSS OR GAIN OF SPIKE
LAB CONTROL STANDARD	20%	3.5	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	AS REQUESTED	3.5	RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT ********************	AUDIT TYPE **********	AUDIT FREQUENCY **************	CONTROL LIMITS **************
1.				
2.				
3.				
4.				
5.				

	INSTRUMENT AUDITS *****************	AUDIT TYPE **********	AUDIT FREQUENCY **************	CONTROL LIMITS **************
1.	ELECTRONICS	INTERNAL STANDARD	EVERY SAMPLE	1%
2.	ELECTRONICS	DARK CURRENTS	WEEKLY	3%
3.	SYSTEM CHECK	WHITE LIGHT	WEEKLY	3%
4.	SYSTEM CHECK	DETECTION LIMITS	WEEKLY	20%
5.				

APPROXIMATE DETECTION LIMIT 4 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 20 UG/L TO 10000 UG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB — 6 / 30 / 1977
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QUALITY ASSURANCE DATA FOR SODIUM

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
558	00929	SODIUM	WATER	ICAP			12

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	****************	**************************	
REAGENT BLANK	20%	3.5%	MG/L
DUPLICATE ANALYSES	10%	3.5%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	10%	10%	% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	20%	3.5	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	AS REQUESTED	3.5	RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.				
2.				
3.				
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.	ELECTRONICS	INTERNAL STANDARD	EVERY SAMPLE	1%
2.	ELECTRONICS	DARK CURRENTS	WEEKLY	3%
3.	SYSTEM CHECK	WHITE LIGHT	WEEKLY	3%
4.	SYSTEM CHECK	DETECTION LIMITS	WEEKLY	20%
5.				

APPROXIMATE DETECTION LIMIT 0.005 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0.020 MG/L TO 500 MG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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U. S. EPA CENTRAL REGION 5 LAB                    6 / 30 / 1977
10.5
                    QUALITY ASSURANCE DATA FOR              TIN

METHOD STORET  PARAMETER         SAMPLE   METHOD                             *   *   METHOD REFERENCE
NUMBER NUMBER                    TYPE     DESCRIPTION
558    01102   TIN               WATER    ICAP                                       12

    PERFORMANCE AUDIT               AUDIT FREQUENCY        CONTROL LIMITS
    (FOR TOTAL METHOD)              (% OF ANALYSES)        SEE APP. #1 FOR CALCULATIONS
    *******************             ****************       *************************
    REAGENT BLANK                   20%                    3.5%       UG/L
    DUPLICATE ANALYSES              10%                    3.5%       RELATIVE PERCENT DIFFERENCE
    SPIKED SAMPLES                  10%                    10%        % LOSS OR GAIN OF SPIKE
    LAB. CONTROL STANDARD           20%                    3.5        RELATIVE PERCENT ERROR
    REFERENCE STANDARDS             AS REQUESTED           3.5        RELATIVE PERCENT ERROR

       PARTIAL METHOD AUDIT      AUDIT TYPE       AUDIT FREQUENCY     CONTROL LIMITS
       ********************      **********       **************      **************
   1.
   2.
   3.
   4.
   5.

       INSTRUMENT AUDITS         AUDIT TYPE           AUDIT FREQUENCY     CONTROL LIMITS
       *****************         **********           **************      **************
   1.  ELECTRONICS               INTERNAL STANDARDS   EVERY SAMPLE        1%
   2.  ELECTRONICS               DARK CURRENTS        WEEKLY              3%
   3.  SYSTEM CHECK              WHITE LIGHT          WEEKLY              3%
   4.  SYSTEM CHECK              DETECTION LIMITS     WEEKLY              20%
   5.

APPROXIMATE DETECTION LIMIT 12 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 60 UG/L TO 10000 UG/L

      PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
10.5

QUALITY ASSURANCE DATA FOR TITANIUM

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	*	METHOD REFERENCE
561	01152	TITANIUM	WATER	ICAP			12

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	*****************	**************************	
REAGENT BLANK	20%	3.5%	UG/L
DUPLICATE ANALYSES	10%	3.5%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	10%	10%	% LOSS OR GAIN OF SPIKE
LAB CONTROL STANDARD	20%	3.5	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	AS REQUESTED	3.5	RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.				
2.				
3.				
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.	ELECTRONICS	INTERNAL STANDARD	EVERY SAMPLE	1%
2.	ELECTRONICS	DARK CURRENTS	WEEKLY	3%
3.	SYSTEM CHECK	WHITE LIGHT	WEEKLY	3%
4.	SYSTEM CHECK	DETECTION LIMITS	WEEKLY	20%
5.				

APPROXIMATE DETECTION LIMIT 1 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 5 UG/L TO 10000 UG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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U. S. EPA CENTRAL REGION 5 LAB                    6 / 30 / 1977
10.5
                    QUALITY ASSURANCE DATA FOR              VANADIUM

METHOD STORET  PARAMETER            SAMPLE  METHOD
NUMBER NUMBER                       TYPE    DESCRIPTION                        *  #  METHOD REFERENCE

 564   01087   VANADIUM             WATER   ICAP
                                                                                     12

     PERFORMANCE AUDIT                 AUDIT FREQUENCY        CONTROL LIMITS
     (FOR TOTAL METHOD)                (% OF ANALYSES)        SEE APP.#1 FOR CALCULATIONS
     *******************               ****************       ************************
     REAGENT BLANK                     20%                    3.5%       UG/L
     DUPLICATE ANALYSES                10%                    3.5%       RELATIVE PERCENT DIFFERENCE
     SPIKED SAMPLES                    10%                    10%        % LOSS OR GAIN OF SPIKE
     LAB CONTROL STANDARD              20%                    3.5        RELATIVE PERCENT ERROR
     REFERENCE STANDARDS               AS REQUESTED           3.5        RELATIVE PERCENT ERROR

        PARTIAL METHOD AUDIT       AUDIT TYPE        AUDIT FREQUENCY       CONTROL LIMITS
        *******************        **********        ***************       *************
     1.
     2.
     3.
     4.
     5.

        INSTRUMENT AUDITS          AUDIT TYPE            AUDIT FREQUENCY   CONTROL LIMITS
        *****************          *********             ***************   *************
     1. ELECTRONICS                INTERNAL STANDARD     EVERY SAMPLE      1%
     2. ELECTRONICS                DARK CURRENTS         WEEKLY            3%
     3. SYSTEM CHECK               WHITE LIGHT           WEEKLY            3%
     4. SYSTEM CHECK               DETECTION LIMITS      WEEKLY            20%
     5.

APPROXIMATE DETECTION LIMIT 1 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 5 UG/L TO 10000 UG/L

      PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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J. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
10.5

QUALITY ASSURANCE DATA FOR YTTRIUM

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	$	METHOD REFERENCE
547		YTTRIUM	WATER	ICAP			12

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	****************	**************************	
REAGENT BLANK	20%	3.5%	UG/L
DUPLICATE ANALYSES	10%	3.5%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	10%	10%	% LOSS OR GAIN OF SPIKE
LAB CONTROL STANDARD	20%	3.5	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	AS REQUESTED	3.5	RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.				
2.				
3.				
4.				
5.				

222<

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS.
	******************	**********	***************	**************
1.	ELECTRONICS	INTERNAL STANDARD	EVERY SAMPLE	1%
2.	ELECTRONICS	DARK CURRENTS	WEEKLY	3%
3.	SYSTEM CHECK	WHITE LIGHT	WEEKLY	3%
4.	SYSTEM CHECK	DETECTION LIMITS	WEEKLY	20%
5.				

APPROXIMATE DETECTION LIMIT 1 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 5 UG/L TO 10000 UG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

J. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
10.5

QUALITY ASSURANCE DATA FOR ZINC

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	* # METHOD REFERENCE
570	01092	ZINC	WATER	ICAP	12

PERFORMANCE AUDIT (FOR TOTAL METHOD) ********************	AUDIT FREQUENCY (% OF ANALYSES) ******************	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS **************************	
REAGENT BLANK	20%	3.5%	UG/L
DUPLICATE ANALYSES	10%	3.5%	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	10%	10%	% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	20%	3.5	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	AS REQUESTED	3.5	RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT ********************	AUDIT TYPE **********	AUDIT FREQUENCY ***************	CONTROL LIMITS **************
1.				
2.				
3.				
4.				
5.				

	INSTRUMENT AUDITS *****************	AUDIT TYPE **********	AUDIT FREQUENCY **************	CONTROL LIMITS **************
1.	ELECTRONICS	INTERNAL STANDARD	EVERY SAMPLE	1%
2.	ELECTRONICS	DARK CURRENTS	WEEKLY	3%
3.	SYSTEM CHECK	WHITE LIGHT	WEEKLY	3%
4.	SYSTEM CHECK	DETECTION LIMITS	WEEKLY	20%
5.				

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APPROXIMATE DETECTION LIMIT 1 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 5 UG/L TO 10000 UG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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J. S. EPA CENTRAL REGION 5 LAB                  6 / 30 / 1977
10.5
                QUALITY ASSURANCE DATA FOR            ALIUMINUM

METHOD STORET PARAMETER            SAMPLE   METHOD
NUMBER NUMBER                      TYPE     DESCRIPTION                              *   #   METHOD REFERENCE
 571          ALIUMINUM            SEDIMENT FLAME AA-NITROUS OXIDE

      PERFORMANCE AUDIT                   AUDIT FREQUENCY               CONTROL LIMITS
      (FOR TOTAL METHOD)                  (% OF ANALYSES)               SEE APP.#1 FOR CALCULATIONS
      ********************                *****************             ***********************
      REAGENT BLANK                       50                            5% DIFF.    MG/L
      DUPLICATE ANALYSES                  100                           5           RELATIVE PERCENT DIFFERENCE
      SPIKED SAMPLES                      10                            10          % LOSS OR GAIN OF SPIKE
      LAB CONTROL STANDARD                50                            5           RELATIVE PERCENT ERROR
      REFERENCE STANDARDS                 AS REQUESTED                  5           RELATIVE PERCENT ERROR
           PARTIAL METHOD AUDIT      AUDIT TYPE            AUDIT FREQUENCY       CONTROL LIMITS
           ********************      **********            ***************       *************
      1.   AS REQUESTED
      2.
      3.
      4.
      5.

           INSTRUMENT AUDITS         AUDIT TYPE            AUDIT FREQUENCY       CONTROL LIMITS
           *****************         **********            ***************       *************
      1.   GAS PRESSURE                                    EVERY TIME
      2.   WORKING PARAMETERS                              EVERY TIME
      3.
      4.
      5.
APPROXIMATE DETECTION LIMIT 0.5 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0.5 MG/L TO 50 MG/L

      PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
10.5

QUALITY ASSURANCE DATA FOR BARIUM

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	*	METHOD REFERENCE
572		BARIUM	SEDIMENT	FLAME AA-NITROUS OXIDE			

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. 01 FOR CALCULATIONS	
**********************	******************	***************************	
REAGENT BLANK	50	5% DIFF.	MG/L
DUPLICATE ANALYSES	100	5	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	10	10	% LOSS OR GAIN OF SPIKE
LAB CONTROL STANDARD	50	5	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	AS REQUESTED	5	RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.	AS REQUESTED			
2.				
3.				
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.	GAS PRESSURE		EVERY TIME	
2.	WORKING PARAMETERS		EVERY TIME	
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT 0.5 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0.5 MG/L TO 25 MG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

J. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
10.5
QUALITY ASSURANCE DATA FOR CADMIUM

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
573	01029	CADMIUM	SEDIMENT	STRONG ACID DIGESTION & AA ANALYSES	N	N	CRL PROC.

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	******************	**************************	
		3.5% UG/KG	MG/KG
READENT BLANK	20%	3.5	RELATIVE PERCENT DIFFERENCE
DUPLICATE ANALYSES	10%	10%	% LOSS OR GAIN OF SPIKE
SPIKED SAMPLES	10%	3.5	RELATIVE PERCENT ERROR
LAB. CONTROL STANDARD	20%	3.5	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	AS REQUESTED		

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	*************
1.				
2.				
3.				
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	*************
1.	OPTIMIZE PARAMETERS		DAILY	10%
2.				
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT 8 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 8 MG/KG TO 12000 MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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J. S. EPA CENTRAL  REGION 5 LAB            6 / 30 / 1977
10.5
                 QUALITY  ASSURANCE  DATA  FOR            CADMIUM

METHOD STORET PARAMETER          SAMPLE   METHOD                                  *   *   METHOD REFERENCE
NUMBER NUMBER                    TYPE     DESCRIPTION

 574          CADMIUM            SEDIMENT FLAME AA

      [illegible] AUDIT                   AUDIT FREQUENCY         CONTROL LIMITS
      (FOR TOTAL METHOD)                  (% OF ANALYSES)         SEE APP.#1 FOR CALCULATIONS
      **********************              ******************      ****************************
      REAGENT BLANK                       50                      5% DIFF.   MG/L
      DUPLICATE ANALYSES                  100                     5          RELATIVE PERCENT DIFFERENCE
      SPIKED SAMPLES                      10                      10         % LOSS OR GAIN OF SPIKE
      LAB CONTROL STANDARD                50                      5          RELATIVE PERCENT ERROR
      REFERENCE STANDARDS                 AS REQUESTED            5          RELATIVE PERCENT ERROR

         PARTIAL METHOD AUDIT     AUDIT TYPE          AUDIT FREQUENCY     CONTROL LIMITS
         ********************     **********          ***************     **************
      1. AS REQUESTED
      2.
      3.
      4.
      5.

         INSTRUMENT AUDITS        AUDIT TYPE          AUDIT FREQUENCY     CONTROL LIMITS
         *****************        **********          ***************     **************
      1. GAS PRESSURE                                 EVERY TIME
      2. WORKING PARAMETERS                           EVERY TIME
      3.
      4.
      5.

APPROXIMATE DETECTION LIMIT 0.001 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0.001 MG/L TO 2 MG/L

     PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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J. S. EPA CENTRAL REGION 5 LAB              6 / 30 / 1977
10.5
                    QUALITY ASSURANCE DATA FOR          CHROMIUM
-----------------------------------------------------------------------------------
METHOD STORET  PARAMETER           SAMPLE    METHOD                            *  *  METHOD REFERENCE
NUMBER NUMBER                      TYPE      DESCRIPTION
-----------------------------------------------------------------------------------
               [illegible]OMIUM    SEDIMENT  STRNG ACID & AA                         CRL PROC.
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          PERFORMANCE AUDIT                  AUDIT FREQUENCY          CONTROL LIMITS
          (FOR TOTAL METHOD)                 (% OF ANALYSES)          SEE APP.#1 FOR CALCULATIONS
          *********************              ******************       **************************
          REAGENT BLANK                      20%                      3.5% UG/KG      MG/KG
          DUPLICATE ANALYSES                 10%                      3.5             RELATIVE PERCENT DIFFERENCE
          SPIKED SAMPLES                     10%                      10%             % LOSS OR GAIN OF SPIKE
          [illegible] CONTROL STANDARD       20%                      3.5             RELATIVE PERCENT ERROR
          REFERENCE STANDARDS                AS REQUESTED             3.5             RELATIVE PERCENT ERROR

             PARTIAL METHOD AUDIT        AUDIT TYPE           AUDIT FREQUENCY       CONTROL LIMITS
             ********************        **********           ***************       **************
          1.
          2.
          3.
          4.
          5.

             INSTRUMENT AUDITS           AUDIT TYPE           AUDIT FREQUENCY       CONTROL LIMITS
             *****************           **********           ***************       **************
          1. OPTIMIZE PARAMETERS                              DAILY                 10%
          2.
          3.
          4.
          5.

APPROXIMATE DETECTION LIMIT 10 MG/ MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 10 MG/KG TO 16000 MG/KG

          PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB                    6 / 30 / 1977
10.5
                        QUALITY ASSURANCE DATA FOR          CHROMIUM
________________________________________________________________________
METHOD STORET  PARAMETER          SAMPLE    METHOD                                 *   #   METHOD REFERENCE
NUMBER NUMBER                     TYPE      DESCRIPTION
________________________________________________________________________
 --              -- -- -|         SEDIMENT  FLAME AA
________________________________________________________________________

      PERFORMANCE AUDIT                     AUDIT FREQUENCY           CONTROL LIMITS
      (FOR TOTAL METHOD)                    (% OF ANALYSES)           SEE APP. #1 FOR CALCULATIONS
      ********************                  *****************         **************************
      REAGENT BLANK                         50                        5% DIFF.      MG/L
      DUPLICATE ANALYSES                    100                       5             RELATIVE PERCENT DIFFERENCE
      SPIKED SAMPLES                        10                        10            % LOSS OR GAIN OF SPIKE
      LAB. CONTROL STANDARD                 50                        5             RELATIVE PERCENT ERROR
      REFERENCE STANDARDS                   AS REQUESTED              5             RELATIVE PERCENT ERROR

         PARTIAL METHOD AUDIT    AUDIT TYPE          AUDIT FREQUENCY      CONTROL LIMITS
         ********************    **********          ***************      **************
      1.  AS REQUESTED
      2.
      3.
      4.
      5.

         INSTRUMENT AUDITS       AUDIT TYPE          AUDIT FREQUENCY      CONTROL LIMITS
         *****************       **********          ***************      **************
      1.  GAS PRESSURE                               EVERY TIME
      2.  WORKING PARAMETERS                         EVERY TIME
      3.
      4.
      5.

APPROXIMATE DETECTION LIMIT 0.002 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0.002 MG/L TO 5 MG/L

      PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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J. S. EPA CENTRAL REGION 5 LAB              6 / 30 / 1977
10.5
                    QUALITY ASSURANCE DATA FOR          COPPER

METHOD STORET  PARAMETER          SAMPLE    METHOD                                    *    @    METHOD REFERENCE
NUMBER NUMBER                     TYPE      DESCRIPTION

 579   01043   COPPER             SEDIMENT  STRONG ACID DIGESTION & AA ANALYSES      NO   NO   NONE

        PERFORMANCE AUDIT                AUDIT FREQUENCY            CONTROL LIMITS
        (FOR TOTAL METHOD)               (% OF ANALYSES)            SEE APP. #1 FOR CALCULATIONS
        ********************             ****************           ************************
        REAGENT BLANK                    20%                        3.5%  UG/KG   UG/L
        DUPLICATE ANALYSES               10%                        3.5           RELATIVE PERCENT DIFFERENCE
        SPIKED SAMPLES                   10%                        10%           % LOSS OR GAIN OF SPIKE
        LAB. CONTROL STANDARD            20%                        3.5           RELATIVE PERCENT ERROR
        REFERENCE STANDARDS              AS REQUESTED               3.5           RELATIVE PERCENT ERROR

           PARTIAL METHOD AUDIT    AUDIT TYPE          AUDIT FREQUENCY     CONTROL LIMITS
           ********************    **********          ***************     **************
        1.
        2.
        3.
        4.
        5.

           INSTRUMENT AUDITS       AUDIT TYPE          AUDIT FREQUENCY     CONTROL LIMITS
           *****************       **********          ***************     **************
        1. OPTIMIZE PARAMETERS                         DAILY               10%
        2.
        3.
        4.
        5.

APPROXIMATE DETECTION LIMIT 10 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 10 UG/L TO 7000 UG/L

        PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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J. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
10.5

QUALITY ASSURANCE DATA FOR COPPER

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	#	#	METHOD REFERENCE
380		COPPER	SEDIMENT	FLAME AA			

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	*****************	*************************	
REAGENT BLANK	50	5% DIFF.	MG/L
DUPLICATE ANALYSES	100	5	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	10	10	% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	50	5	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	AS REQUESTED	5	RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.	AS REQUESTED			
2.				
3.				
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.	GAS PRESSURE		EVERY TIME	
2.	WORKING PARAMETERS		EVERY TIME	
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT 0.001 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0.001 MG/L TO 5 MG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370 .

J. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
10.5

QUALITY ASSURANCE DATA FOR IRON

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	*	METHOD REFERENCE
582	01170	IRON	SEDIMENT	STRONG ACID DIGESTION & AA ANALYSES			CRL PROC.

PERFORMANCE AUDIT (FOR TOTAL METHOD) ********************	AUDIT FREQUENCY (% OF ANALYSES) *****************	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS **************************	
REAGENT BLANK	20%	3.5% UG/KG	MG/KG
DUPLICATE ANALYSES	10%	3.5	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	10%	10%	% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	20%	3.5	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	AS REQUESTED	3.5	RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT ********************	AUDIT TYPE **********	AUDIT FREQUENCY ***************	CONTROL LIMITS **************
1.				
2.				
3.				
4.				
5.				

	INSTRUMENT AUDITS *****************	AUDIT TYPE **********	AUDIT FREQUENCY ***************	CONTROL LIMITS *************
1.	OPTIMIZE PARAMETERS		DAILY	10%
2.				
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT 20 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 20 MG/KG TO 10000 MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
10.5

QUALITY ASSURANCE DATA FOR IRON

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	* #	METHOD REFERENCE
583		IRON	SEDIMENT	FLAME AA		

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	*****************	*************************	
			MG/L
REAGENT BLANK	50	5% DIFF.	RELATIVE PERCENT DIFFERENCE
DUPLICATE ANALYSES	100	5	% LOSS OR GAIN OF SPIKE
SPIKED SAMPLES	10	10	RELATIVE PERCENT ERROR
LAB. CONTROL STANDARD	50	5	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	AS REQUESTED	5	

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	**************	*************
1.	AS REQUESTED			
2.				
3.				
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	*************
1.	GAS PRESSURE		EVERY TIME	
2.	WORKING PARAMETERS		EVERY TIME	
3.				
4.				
5.				

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APPROXIMATE DETECTION LIMIT 0.003 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0.003 MG/L TO 5 MG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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J. S. EPA CENTRAL REGION 5 LAB                    6 / 30 / 1977
10.5
                    QUALITY ASSURANCE DATA FOR          LEAD

METHOD STORET PARAMETER           SAMPLE    METHOD                                  *   #   METHOD REFERENCE
NUMBER NUMBER                     TYPE      DESCRIPTION

 585   01052  LEAD                SEDIMENT  STRONG ACID DIGESTION & AA                       CRL PROC.

         PERFORMANCE AUDIT                 AUDIT FREQUENCY           CONTROL LIMITS
         (FOR TOTAL METHOD)                (% OF ANALYSES)           SEE APP. #1 FOR CALCULATIONS
         ********************              ***************           **********************
         REAGENT BLANK                     20%                       3.5% UG/KG      MG/KG
         DUPLICATE ANALYSES                10%                       3.5             RELATIVE PERCENT DIFFERENCE
         SPIKED SAMPLES                    10%                       10%             % LOSS OR GAIN OF SPIKE
         LAB CONTROL STANDARD              20%                       3.5             RELATIVE PERCENT ERROR
         REFERENCE STANDARDS               AS REQUESTED              3.5             RELATIVE PERCENT ERROR

            PARTIAL METHOD AUDIT       AUDIT TYPE           AUDIT FREQUENCY        CONTROL LIMITS
            ********************       **********           ***************        **************
         1.
         2.
         3.
         4.
         5.

            INSTRUMENT AUDITS          AUDIT TYPE           AUDIT FREQUENCY        CONTROL LIMITS
            *****************          **********           ***************        **************
         1. OPTIMIZE PARAMETERS                             DAILY                  10%
         2.
         3.
         4.
         5.

APPROXIMATE DETECTION LIMIT 20 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 20 MG/KG TO 15000 MG/KG

     PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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J. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
10.5

QUALITY ASSURANCE DATA FOR LEAD

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	*	METHOD REFERENCE
586		LEAD	SEDIMENT	FLAME AA			

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	*****************	**************************	
REAGENT BLANK	50	5% DIFF.	MG/L
DUPLICATE ANALYSES	100	5	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	10	10	% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	50	5	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	AS REQUESTED	5	RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	***************
1.	AS REQUESTED			
2.				
3.				
4.				
5.				

235<

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	******************	**********	***************	***************
1.	GAS PRESSURE		EVERY TIME	
2.	WORKING PARAMETERS		EVERY TIME	
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT 0.008 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0.008 MG/L TO 20 MG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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J. S. EPA CENTRAL REGION 5 LAB                    6 / 30 / 1977
10.5
                     QUALITY ASSURANCE DATA FOR            MANGANESE
-------------------------------------------------------------------------------
METHOD STORET  PARAMETER          SAMPLE    METHOD                          *   #   METHOD REFERENCE
NUMBER NUMBER                     TYPE      DESCRIPTION
-------------------------------------------------------------------------------
 588   01053   MANGANESE          SEDIMENT  STRONG ACID DIGESTION & AA     NO  NO  NONE
-------------------------------------------------------------------------------

     PERFORMANCE AUDIT            AUDIT FREQUENCY          CONTROL LIMITS
     (FOR TOTAL METHOD)           (% OF ANALYSES)          SEE APP. #1 FOR CALCULATIONS
     ********************         ***************          *************************
     REAGENT BLANK                20%                      3.5%  UG/KG    UG/L
     DUPLICATE ANALYSES           10%                      3.5            RELATIVE PERCENT DIFFERENCE
     SPIKED SAMPLES               10%                      10%            % LOSS OR GAIN OF SPIKE
     LAB. CONTROL STANDARD        20%                      3.5            RELATIVE PERCENT ERROR
     REFERENCE STANDARDS          AS REQUESTED             3.5            RELATIVE PERCENT ERROR

        PARTIAL METHOD AUDIT   AUDIT TYPE        AUDIT FREQUENCY     CONTROL LIMITS
        ********************   **********        ***************     **************
     1.
     2.
     3.
     4.
     5.

        INSTRUMENT AUDITS      AUDIT TYPE        AUDIT FREQUENCY     CONTROL LIMITS
        *****************      **********        ***************     **************
     1. OPTIMIZE PARAMETERS                      DAILY               10%
     2.
     3.
     4.
     5.

APPROXIMATE DETECTION LIMIT 10 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 10 UG/L TO 3000 UG/L

     PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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J. S. EPA CENTRAL REGION 5 LAB                6 / 30 / 1977
10.5
                  QUALITY ASSURANCE DATA FOR          MANGANESE
-----------------------------------------------------------------------------
METHOD STORET  PARAMETER         SAMPLE   METHOD                            *   #   METHOD REFERENCE
NUMBER NUMBER                    TYPE     DESCRIPTION
-----------------------------------------------------------------------------
 589           MANGANESE         SEDIMENT FLAME AA
-----------------------------------------------------------------------------

      PERFORMANCE AUDIT                 AUDIT FREQUENCY           CONTROL LIMITS
      (FOR TOTAL METHOD)                (% OF ANALYSES)           SEE APP. #1 FOR CALCULATIONS
      *******************               ***************           ************************.*
      REAGENT BLANK                     50                        5% DIFF.      MG/L
      DUPLICATE ANALYSES                100                       5             RELATIVE PERCENT DIFFERENCE
      SPIKED SAMPLES                    10                        10            % LOSS OR GAIN OF SPIKE
      LAB. CONTROL STANDARD             50                        5             RELATIVE PERCENT ERROR
      REFERENCE STANDARDS               AS REQUESTED              5             RELATIVE PERCENT ERROR

         PARTIAL METHOD AUDIT       AUDIT TYPE          AUDIT FREQUENCY         CONTROL LIMITS
         ********************       **********          ***************         **************
      1. AS REQUESTED
      2.
      3.
      4.
      5.

         INSTRUMENT AUDITS          AUDIT TYPE          AUDIT FREQUENCY         CONTROL LIMITS
         *****************          **********          ***************         **************
      1. GAS PRESSURE                                   EVERY TIME
      2. WORKING PARAMETERS                             EVERY TIME
      3.
      4.
      5.

APPROXIMATE DETECTION LIMIT 0.001 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0.001 MG/L TO 3 MG/L

      PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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J. S. EPA CENTRAL REGION 5 LAB                   6 / 30 / 1977
10.5
                    QUALITY ASSURANCE DATA FOR               NICKEL
------------------------------------------------------------------------------------
METHOD STORET  PARAMETER          SAMPLE    METHOD                          *  *  METHOD REFERENCE
NUMBER NUMBER                     TYPE      DESCRIPTION
------------------------------------------------------------------------------------
391    01068   NICKEL             SEDIMENT  STRONG ACID DIGESTION & AA                CRL PROC.
------------------------------------------------------------------------------------

      PERFORMANCE AUDIT             AUDIT FREQUENCY            CONTROL LIMITS
      (FOR TOTAL METHOD)            (% OF ANALYSES)            SEE APP.#1 FOR CALCULATIONS
      ********************          *****************          **************************
      REAGENT BLANK                 50%                        UG/KG          MG/KG
      DUPLICATE ANALYSES            10%                                       RELATIVE PERCENT DIFFERENCE
      SPIKED SAMPLES                10%                                       % LOSS OR GAIN OF SPIKE
      LAB CONTROL STANDARD          20%                        AS REQUESTED   RELATIVE PERCENT ERROR
      REFERENCE STANDARDS                                                     RELATIVE PERCENT ERROR

         PARTIAL METHOD AUDIT     AUDIT TYPE         AUDIT FREQUENCY     CONTROL LIMITS
         ********************     **********         ***************     **************
     1.
     2.
     3.
     4.
     5.

         INSTRUMENT /AUDITS       AUDIT TYPE         AUDIT FREQUENCY     CONTROL LIMITS
         *****************        **********         ***************     **************
     1.  OPTIMIZE PARAMETERS                         DAILY               10%
     2.
     3.
     4.
     5.
APPROXIMATE DETECTION LIMIT 30 MG/ MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 30  MG/KG TO 10000 MG/KG

     PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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I. S. EPA CENTRAL REGION 5 LAB               6 / 30 / 1977
10.5
                   QUALITY ASSURANCE DATA FOR          NICKEL

ETHOD STORET  PARAMETER          SAMPLE    METHOD                          *    #    METHOD REFERENCE
UMBER NUMBER                     TYPE      DESCRIPTION

592           NICKEL             SEDIMENT  FLAME AA

      PERFORMANCE AUDIT                    AUDIT FREQUENCY           CONTROL LIMITS
      (FOR TOTAL METHOD)                   (% OF ANALYSES)           SEE APP. #1 FOR CALCULATIONS
      ********************                 *****************         ************************
      REAGENT BLANK                        50                        5% DIFF.      MG/L
      DUPLICATE ANALYSES                   100                       5             RELATIVE PERCENT DIFFERENCE
      SPIKED SAMPLES                       10                        10            % LOSS OR GAIN OF SPIKE
      LAB. CONTROL STANDARD                50                        5             RELATIVE PERCENT ERROR
      REFERENCE STANDARDS                  AS REQUESTED              5             RELATIVE PERCENT ERROR

         PARTIAL METHOD AUDIT        AUDIT TYPE           AUDIT FREQUENCY          CONTROL LIMITS
         ********************        **********           ***************          **************
      1. AS REQUESTED
      2.
      3.
      4.
      5.

         INSTRUMENT AUDITS           AUDIT TYPE           AUDIT FREQUENCY          CONTROL LIMITS
         *****************           **********           ***************          **************
      1. GAS PRESSURE                                     EVERY TIME
      2. WORKING PARAMETERS                               EVERY TIME
      3.
      4.
      5.

PPROXIMATE DETECTION LIMIT 0.005 MG/L

ORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0.005 MG/L TO 5 MG/L

     PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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J. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
10.5

QUALITY ASSURANCE DATA FOR THALLIUM

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	*	METHOD REFERENCE
594	1059	THALLIUM	WATER	AA			

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	****************	*************************	
REAGENT BLANK	20%	3.5%	UG/L
DUPLICATE ANALYSES	10%	3.5	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	10%	10%	% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	20%	3.5	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	AS REQUESTED	3.5	RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	**************	**************
1.				
2.				
3.				
4.				
5.				

240<

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	**************	**************
1.	OPTIMIZE PARAMETERS		DAILY	10%
2.				
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT 50 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 50 UG/L TO 1000 UG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

J. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
10.5

QUALITY ASSURANCE DATA FOR ZINC

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
597	01093	ZINC	SEDIMENT	STRNG ACID DIGESTION & AA	NO	NO	NONE

PERFORMANCE AUDIT (FOR TOTAL METHOD) ********************	AUDIT FREQUENCY (% OF ANALYSES) ****************	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS **************************	
REAGENT BLANK	20%	3.5% UG/KG	UG/L
DUPLICATE ANALYSES	10%	3.5	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	10%	10%	% LOSS OR GAIN OF SPIKE
LAB CONTROL STANDARD	20%	3.5	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	AS REQUESTED	3.5	RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT ********************	AUDIT TYPE **********	AUDIT FREQUENCY ***************	CONTROL LIMITS **************
1.				
2.				
3.				
4.				
5.				

241<

	INSTRUMENT AUDITS ******************	AUDIT TYPE **********	AUDIT FREQUENCY ***************	CONTROL LIMITS **************
1.	OPTIMIZE PARAMETERS		DAILY	10%
2.				
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT 5 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 5 UG/L TO 1000 UG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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U. S. EPA CENTRAL REGION 5 LAB                         6 / 30 / 1977
10.5
                          QUALITY ASSURANCE DATA FOR            ZINC
------------------------------------------------------------------------
METHOD STORET  PARAMETER          SAMPLE    METHOD
NUMBER NUMBER                     TYPE      DESCRIPTION                       *   *   METHOD REFERENCE
------------------------------------------------------------------------
 398           ZINC               SEDIMENT  FLAME AA
------------------------------------------------------------------------

        PERFORMANCE AUDIT                 AUDIT FREQUENCY          CONTROL LIMITS
        (FOR TOTAL METHOD)                (% OF ANALYSES)          SEE APP.#1 FOR CALCULATIONS
        ********************              *****************        ************************
        REAGENT BLANK                     50                       5% DIFF       MG/L
        DUPLICATE ANALYSES                100                      5             RELATIVE PERCENT DIFFERENCE
        SPIKED SAMPLES                    10                       10            % LOSS OR GAIN OF SPIKE
        LAB.CONTROL STANDARD              50                       5             RELATIVE PERCENT ERROR
        REFERENCE STANDARDS               AS REQUESTED             5             RELATIVE PERCENT ERROR
           PARTIAL METHOD AUDIT        AUDIT TYPE           AUDIT FREQUENCY        CONTROL LIMITS
           ********************        **********           ***************        **************
     1.    AS REQUESTED
     2.
     3.
     4.
     5.

           INSTRUMENT AUDITS           AUDIT TYPE           AUDIT FREQUENCY        CONTROL LIMITS
           *****************           **********           ***************        **************
     1.    GAS PRESSURE                                     EVERY TIME
     2.    WORKING PARAMETERS                               EVERY TIME
     3.
     4.
     5.
APPROXIMATE DETECTION LIMIT 0.001 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0.001 MG/L TO 1 MG/L

       PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL  REGION 5 LAB              6 / 30 / 1977
 10.5
                   QUALITY  ASSURANCE  DATA  FOR          ANTIMONY

METHOD STORET  PARAMETER            SAMPLE   METHOD                                        *    *   METHOD REFERENCE
NUMBER NUMBER                       TYPE     DESCRIPTION

 600   01097   ANTIMONY             WATER    FLAMELESS AA

        PERFORMANCE AUDIT                    AUDIT FREQUENCY              CONTROL LIMITS
        (FOR TOTAL METHOD)                   (% OF ANALYSES)              SEE APP. #1 FOR CALCULATIONS
        ********************                 ****************             ***************************
        REAGENT BLANK                        20%                          5%            UG/L
        DUPLICATE ANALYSES                   20%                          5             RELATIVE PERCENT DIFFERENCE
        SPIKED SAMPLES                       10%                          10%           % LOSS OR GAIN OF SPIKE
        LAB. CONTROL STANDARD                5%                           5             RELATIVE PERCENT ERROR
        REFERENCE STANDARDS                  AS REQUESTED                 5             RELATIVE PERCENT ERROR

           PARTIAL METHOD AUDIT        AUDIT TYPE          AUDIT FREQUENCY          CONTROL LIMITS
           ********************        **********          ***************          **************
        1.
        2.
        3.
        4.
        5.

           INSTRUMENT AUDITS           AUDIT TYPE          AUDIT FREQUENCY          CONTROL LIMITS
           ******************          **********          ***************          **************
        1. OPTIMIZE PARAMETERS                             DAILY                    10%
        2.
        3.
        4.
        5.

APPROXIMATE DETECTION LIMIT 2 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 2 UG/L TO 25000 UG/L

        PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB               6 / 30 / 1977
10.5
                    QUALITY ASSURANCE DATA FOR          ARSENIC

METHOD STORET  PARAMETER        SAMPLE   METHOD                                         *   *   METHOD REFERENCE
NUMBER NUMBER                   TYPE     DESCRIPTION

603            ARSENIC          WATER    FLAMELESS AA

      PERFORMANCE AUDIT              AUDIT FREQUENCY          CONTROL LIMITS
      (FOR TOTAL METHOD)             (% OF ANALYSES)          SEE APP. 01 FOR CALCULATIONS
      ********************           ******************       **************************
      REAGENT BLANK                  20%                      5%         UG/L
      DUPLICATE ANALYSES             20%                      5          RELATIVE PERCENT DIFFERENCE
      SPIKED SAMPLES                 10%                      10%        % LOSS OR GAIN OF SPIKE
      LAB CONTROL STANDARD           5%                       5          RELATIVE PERCENT ERROR
      REFERENCE STANDARDS            AS REQUESTED             5          RELATIVE PERCENT ERROR

         PARTIAL METHOD AUDIT   AUDIT TYPE          AUDIT FREQUENCY     CONTROL LIMITS
         ********************   **********          ***************     **************
      1.
      2.
      3.
      4.
      5.

         INSTRUMENT AUDITS      AUDIT TYPE          AUDIT FREQUENCY     CONTROL LIMITS
         *****************      **********          ***************     **************
      1. OPTIMIZE PARAMETERS                        DAILY               10%
      2.
      3.
      4.
      5.
APPROXIMATE DETECTION LIMIT 0.5 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0.5 UG/L TO 25000 UG/L

      PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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244<

U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
10.5

QUALITY ASSURANCE DATA FOR SELENIUM

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
606		SELENIUM	WATER	FLAMELESS AA			

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	*****************	***************************	
REAGENT BLANK	20%	5X	UG/L
DUPLICATE ANALYSES	20%	5	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	10%	10%	% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	5%	5	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	AS REQUESTED	5	RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.				
2.				
3.				
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.	OPTIMIZE PARAMETERS		DAILY	10%
2.				
3.				
4.				
5.				

245<

APPROXIMATE DETECTION LIMIT 2 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 2 UG/L TO 25000 UG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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J. S. EPA CENTRAL REGION 5 LAB                    6 / 30 / 1977
10.5
                      QUALITY ASSURANCE DATA FOR            OIL IDENT.

METHOD STORET  PARAMETER          SAMPLE  METHOD                                   *   #   METHOD REFERENCE
NUMBER NUMBER                     TYPE    DESCRIPTION
 609           OIL IDENT.         OIL/WATER COMPARISON 2 SAMPLS FOR SAME OIL TYPE  N   Y   NONE

      PERFORMANCE AUDIT                 AUDIT FREQUENCY          CONTROL LIMITS
      (FOR TOTAL METHOD)                (% OF ANALYSES)          SEE APP. #1 FOR CALCULATIONS
      ********************              *****************        **************************
      REAGENT BLANK                     5                                   MG/L
      DUPLICATE ANALYSES                                                    RELATIVE PERCENT DIFFERENCE
      SPIKED SAMPLES                                                        % LOSS OR GAIN OF SPIKE
      LAB CONTROL STANDARD                                                  RELATIVE PERCENT ERROR
      REFERENCE STANDARDS                                                   RELATIVE PERCENT ERROR

         PARTIAL METHOD AUDIT       AUDIT TYPE           AUDIT FREQUENCY     CONTROL LIMITS
         ********************       **********           ***************     *************
      1. HYDROCARBON MIXTURE        CHROMATOGRAPH        5                   1% NORMAL RETENTION TIME
      2. HYDROCARBON MIXTURE        CHROMATOGRAPH        5                   5% DETECTOR SENSITIVITY
      3.
      4.
      5.

         INSTRUMENT AUDITS          AUDIT TYPE           AUDIT FREQUENCY     CONTROL LIMITS
         *****************          **********           ***************     *************
      1.
      2.
      3.
      4.
      5.
APPROXIMATE DETECTION LIMIT 1 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 1 MG/L TO 1000 MG/L

      PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA  CENTRAL  REGION 5 LAB                 6 / 30 / 1977
 10.5
                  QUALITY  ASSURANCE  DATA  FOR          OIL&GREASE
---------------------------------------------------------------------------------------
METHOD STORET PARAMETER          SAMPLE   METHOD
NUMBER NUMBER                    TYPE     DESCRIPTION .                        *    $    METHOD REFERENCE
---------------------------------------------------------------------------------------
 612   00556  OIL&GREASE         WATER    FREON EXTRACT W/GRAVIMETRIC ANAL.    N    Y    K2-P0229
---------------------------------------------------------------------------------------

       PERFORMANCE AUDIT                  AUDIT FREQUENCY          CONTROL LIMITS
       (FOR TOTAL METHOD)                 (% OF ANALYSES)          SEE APP. 01 FOR CALCULATIONS
       *******************                ****************         *************************
       REAGENT BLANK                      5                        1        MG/L
       DUPLICATE ANALYSES                                                   RELATIVE PERCENT DIFFERENCE
       SPIKED SAMPLES                                                       % LOSS OR GAIN OF SPIKE
       LAB. CONTROL STANDARD              5                                 RELATIVE PERCENT ERROR
       REFERENCE STANDARDS                                                  RELATIVE PERCENT ERROR

          PARTIAL METHOD AUDIT      AUDIT TYPE          AUDIT FREQUENCY     CONTROL LIMITS
          ********************      **********          ***************     ***************
       1.
       2.
       3.
       4.
       5.

          INSTRUMENT AUDITS         AUDIT TYPE          AUDIT FREQUENCY     CONTROL LIMITS
          *****************         **********          ***************     ***************
       1.
       2.
       3.
       4.
       5.

APPROXIMATE DETECTION LIMIT 4 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 5 MG/L TO 1000 MG/L

      PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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J. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
10.5

QUALITY ASSURANCE DATA FOR OIL&GREASE

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	*	METHOD REFERENCE
615	00557	OIL&GREASE	SEDIMENT	SOXHLET EXTRACT. W/GRAVIMETRIC ANAL.			

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	***************	************************	
REAGENT BLANK	5	4	MG/KG
DUPLICATE ANALYSES	10	+20% FROM AVG.	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD			RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
********************	**********	***************	**************
1.			
2.			
3.			
4.			
5.			

INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
*****************	**********	***************	**************
1.			
2.			
3.			
4.			
5.			

248<

APPROXIMATE DETECTION LIMIT 250 MG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 250 MG/KG TO 1000 MG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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U. S. EPA CENTRAL REGION 5 LAB              6 / 30 / 1977
10.5
                      QUALITY ASSURANCE DATA FOR           METHYLENE CHLOR

METHOD STORET  PARAMETER          SAMPLE  METHOD                                           *  #  METHOD REFERENCE
NUMBER NUMBER                     TYPE    DESCRIPTION

 618           METHYLENE CHLOR    WATER                                                          REF. 18

          PERFORMANCE AUDIT                 AUDIT FREQUENCY              CONTROL LIMITS
          (FOR TOTAL METHOD)                (% OF ANALYSES)              SEE APP. #1 FOR CALCULATIONS
          *********************             ******************           ****************************
          REAGENT BLANK                     10                           1             UG/L
          DUPLICATE ANALYSES                5                            +20% OF MEAN  RELATIVE PERCENT DIFFERENCE
          SPIKED SAMPLES                                                               % LOSS OR GAIN OF SPIKE
          LAB. CONTROL STANDARD             5                            WITHIN 10%    RELATIVE PERCENT ERROR
          REFERENCE STANDARDS                                                          RELATIVE PERCENT ERROR

             PARTIAL METHOD AUDIT     AUDIT TYPE            AUDIT FREQUENCY            CONTROL LIMITS
             *********************    **********            ****************           **************
          1.
          2.
          3.
          4.
          5.

             INSTRUMENT AUDITS        AUDIT TYPE            AUDIT FREQUENCY            CONTROL LIMITS
             *****************        **********            ****************           **************
          1. DETECTOR RESPONSE                              EACH RUN                   10% OF PREVIOUS VALUE
          2. RETENTION TIME                                 EACH RUN                   5% OF PREVIOUS VALUE
          3.
          4.
          5.

APPROXIMATE DETECTION LIMIT 1 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 1 UG/L TO 500 UG/L

          PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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J. S. EPA  CENTRAL  REGION  5  LAB              6 / 30 / 1977
 10. 5
                         QUALITY  ASSURANCE  DATA  FOR          CARBON  TETRACHL
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METHOD STORET  PARAMETER          SAMPLE   METHOD
NUMBER NUMBER                     TYPE     DESCRIPTION                  *    #   METHOD REFERENCE
--------------------------------------------------------------------------------
 621           CARBON TETRACHL    WATER                                          REF. 18
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          PERFORMANCE AUDIT              AUDIT FREQUENCY          CONTROL LIMITS
          (FOR TOTAL METHOD)             (% OF ANALYSES)          SEE APP. #1 FOR CALCULATIONS
          ********************           *****************        ***************C***********+
          REAGENT BLANK                  10                       1           UG/L
          DUPLICATE ANALYSES             5                        +20%        RELATIVE PERCENT DIFFERENCE
          SPIKED SAMPLES                                                      % LOSS OR GAIN OF SPIKE
          LAB. CONTROL STANDARD          5                        WITHIN 10%  RELATIVE PERCENT ERROR
          REFERENCE STANDARDS            QUARTERLY                10%         RELATIVE PERCENT ERROR

               PARTIAL METHOD AUDIT    AUDIT TYPE         AUDIT FREQUENCY     CONTROL LIMITS
               ********************    **********         ***************     **************
          1.
          2.
          3.
          4.
          5.

               INSTRUMENT AUDITS       AUDIT TYPE         AUDIT FREQUENCY     CONTROL LIMITS
               **!**************       **********         ***************     **************
          1.
          2.
          3.
          4.
          5.

APPROXIMATE DETECTION LIMIT 1 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 1 UG/L TO 500 UG/L

      PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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250<

J. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
10.5

QUALITY ASSURANCE DATA FOR CHLOROFORM

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
624		CHLOROFORM	WATER				REF. 18

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	****************	*************************	
REAGENT BLANK	10	1	UG/L
DUPLICATE ANALYSES	5	+20% OF MEAN	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	5	WITHIN 10%	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	QUARTERLY	10%	RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.				
2.				
3.				
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.				
2.				
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT 1 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 1 UG/L TO 500 UG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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J. S. EPA CENTRAL REGION 5 LAB                    6 / 30 / 1977
10.5
                  QUALITY ASSURANCE DATA FOR               1-2-DECHLOROETH

METHOD STORET PARAMETER          SAMPLE  METHOD                              *   *   METHOD REFERENCE
NUMBER NUMBER                    TYPE    DESCRIPTION

 427          1-2-DECHLOROETH    WATER                                                REF. 10

          PERFORMANCE AUDIT                 AUDIT FREQUENCY             CONTROL LIMITS
          (FOR TOTAL METHOD)                (% OF ANALYSES)             SEE APP. #1 FOR CALCULATIONS
          ********************              ****************            ***************************
          REAGENT BLANK                     10                          1               UG/L
          DUPLICATE ANALYSES                5                           +20% OF MEAN    RELATIVE PERCENT DIFFERENCE
          SPIKED SAMPLES                                                                % LOSS OR GAIN OF SPIKE
          LAB.CONTROL STANDARD              5                           WITHIN 10%      RELATIVE PERCENT ERROR
          REFERENCE STANDARDS               QUARTERLY                   10%             RELATIVE PERCENT ERROR

             PARTIAL METHOD AUDIT      AUDIT TYPE         AUDIT FREQUENCY     CONTROL LIMITS
             ********************      **********         ***************     **************
          1.
          2.
          3.
          4.
          5.

             INSTRUMENT AUDITS         AUDIT TYPE         AUDIT FREQUENCY     CONTROL LIMITS
             *****************         **********         ***************     **************
          1.
          2.
          3.
          4.
          5.
APPROXIMATE DETECTION LIMIT 1 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 1 UG/L TO 500 UG/L

          PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB                6 / 30 / 1977
10.5
                    QUALITY ASSURANCE DATA FOR                DICHLOROBROMOMONE

                                                                   * *  METHOD REFERENCE
METHOD STORET  PARAMETER          SAMPLE   METHOD
NUMBER NUMBER                     TYPE     DESCRIPTION
                                                                            REF. 10
 630          DICHLOROBROMOMONE   WATER

      PERFORMANCE AUDIT               AUDIT FREQUENCY           CONTROL LIMITS
      (FOR TOTAL METHOD)              (% OF ANALYSES)           SEE APP. #1 FOR CALCULATIONS
      ******************              ***************           **************************
      REAGENT BLANK                   10                        1          UG/L
      DUPLICATE ANALYSES              5                         +20% OF MEAN  RELATIVE PERCENT DIFFERENCE
      SPIKED SAMPLES                                                       % LOSS OR GAIN OF SPIKE
      LAB. CONTROL STANDARD           5                         WITHIN 10%  RELATIVE PERCENT ERROR
      REFERENCE STANDARDS             QUARTERLY                 10%        RELATIVE PERCENT ERROR

          PARTIAL METHOD AUDIT    AUDIT TYPE          AUDIT FREQUENCY      CONTROL LIMITS
          ********************    **********          ***************      **************
      1.
      2.
      3.
      4.
      5.

          INSTRUMENT AUDITS       AUDIT TYPE          AUDIT FREQUENCY      CONTROL LIMITS
          *****************       **********          ***************      **************
      1.
      2.
      3.
      4.
      5.

APPROXIMATE DETECTION LIMIT 1 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 1 UG/L TO 500 UG/L

      PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL  REGION 5 LAB                        6 / 30 / 1977
 10.5
                   QUALITY  ASSURANCE  DATA  FOR             CHLORODIBROMOME

METHOD STORET  PARAMETER         SAMPLE    METHOD                              *   #    METHOD REFERENCE
NUMBER NUMBER                    TYPE      DESCRIPTION
 433           CHLORODIBROMOME   WATER                                                  REF. 18

          PERFORMANCE AUDIT               AUDIT FREQUENCY              CONTROL LIMITS
          (FOR TOTAL METHOD)              (% OF ANALYSES)              SEE APP. #1 FOR CALCULATIONS
          ***********************         *****************            ***************************
          REAGENT BLANK                   10                           1             UG/L
          DUPLICATE ANALYSES              5                            +20% OF MEAN  RELATIVE PERCENT DIFFERENCE
          SPIKED SAMPLES                                                             % LOSS OR GAIN OF SPIKE
          LAB CONTROL STANDARD            5                            WITHIN 10%    RELATIVE PERCENT ERROR
          REFERENCE STANDARDS             QUARTERLY                    10            RELATIVE PERCENT ERROR

             PARTIAL METHOD AUDIT      AUDIT TYPE          AUDIT FREQUENCY          CONTROL LIMITS
             ********************      **********          ***************          **************
          1.
          2.
          3.
          4.
          5.

             INSTRUMENT AUDITS         AUDIT TYPE          AUDIT FREQUENCY          CONTROL LIMITS
             *****************         **********          ***************          **************
          1.
          2.
          3.
          4.
          5.

APPROXIMATE DETECTION LIMIT 1 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 1 UG/L TO 500 UG/L

          PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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J. S. EPA CENTRAL REGION 5 LAB                6 / 30 / 1977
10.5
                    QUALITY ASSURANCE DATA FOR                 BROMOFORM

                                                                 *  #  METHOD REFERENCE
METHOD STORET  PARAMETER       SAMPLE   METHOD
NUMBER NUMBER                  TYPE     DESCRIPTION
                                                                       REF. 18
 636           BROMOFORM       WATER

        PERFORMANCE AUDIT              AUDIT FREQUENCY          CONTROL LIMITS
        (FOR TOTAL METHOD)             (% OF ANALYSES)          SEE APP. #1 FOR CALCULATIONS
        ********************           *****************        **************************
        REAGENT BLANK                  10                       10              UG/L
        DUPLICATE ANALYSES             5                        +20% OF MEAN    RELATIVE PERCENT DIFFERENCE
        SPIKED SAMPLES                                                          % LOSS OR GAIN OF SPIKE
        LAB. CONTROL STANDARD          5                        WITHIN 10%      RELATIVE PERCENT ERROR
        REFERENCE STANDARDS                                     10              RELATIVE PERCENT ERROR

           PARTIAL METHOD AUDIT     AUDIT TYPE        AUDIT FREQUENCY      CONTROL LIMITS
           ********************     **********        ***************      **************
        1.
        2.
        3.
        4.
        5.

           INSTRUMENT AUDITS        AUDIT TYPE        AUDIT FREQUENCY      CONTROL LIMITS
           *****************        **********        ***************      **************
        1.
        2.
        3.
        4.
        5.

APPROXIMATE DETECTION LIMIT 10 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 10 UG/L TO 500 UG/L

     PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
10.5

QUALITY ASSURANCE DATA FOR PHENOLIC COMP.

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	*	METHOD REFERENCE
639		PHENOLIC COMP.	WATER	AQUEOUS INJECTION			NONE

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. 01 FOR CALCULATIONS	
REAGENT BLANK	10	5	MG/L
DUPLICATE ANALYSES	10	10	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB CONTROL STANDARD	5	10	RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
1.				
2.				
3.				
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
1.				
2.				
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT 5 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 5 MG/L TO 500 MG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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U. S. EPA CENTRAL REGION 5 LAB                     6 / 30 / 1977
10.5
                    QUALITY ASSURANCE DATA FOR              PHENOLIC COMP.
------------------------------------------------------------------------------
METHOD STORET  PARAMETER          SAMPLE   METHOD
NUMBER NUMBER                     TYPE     DESCRIPTION              *   #   METHOD REFERENCE
------------------------------------------------------------------------------
 642           PHENOLIC COMP.     WATER    EXTRACT.-PENTAFLUORO.DERIV.W/EC-GC
------------------------------------------------------------------------------

     PERFORMANCE AUDIT                    AUDIT FREQUENCY         CONTROL LIMITS
     (FOR TOTAL METHOD)                   (% OF ANALYSES)         SEE APP. #1 FOR CALCULATIONS
     ********************                 ****************        ****************************
     REAGENT BLANK                        10                      1         UG/L
     DUPLICATE ANALYSES                   5                       10        RELATIVE PERCENT DIFFERENCE
     SPIKED SAMPLES                                                         % LOSS OR GAIN OF SPIKE
     LAB.CONTROL STANDARD                 5                       10        RELATIVE PERCENT ERROR
     REFERENCE STANDARDS                                                    RELATIVE PERCENT ERROR

          PARTIAL METHOD AUDIT      AUDIT TYPE          AUDIT FREQUENCY     CONTROL LIMITS
          ********************      **********          ***************     **************
     1.
     2.
     3.
     4.
     5.

          INSTRUMENT AUDITS         AUDIT TYPE          AUDIT FREQUENCY     CONTROL LIMITS
          *****************         **********          ***************     **************
     1.
     2.
     3.
     4.
     5.

APPROXIMATE DETECTION LIMIT 1 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 1 UG/L TO 5000 UG/L

     PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8270
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U. S. EPA CENTRAL REGION 5 LAB                6 / 30 / 1977
10.5
                 QUALITY ASSURANCE DATA FOR          GENERAL ORGANIC
------------------------------------------------------------------------------
METHOD STORET  PARAMETER        SAMPLE  METHOD                      *  #  METHOD REFERENCE
NUMBER NUMBER                   TYPE    DESCRIPTION
------------------------------------------------------------------------------
645            GENERAL ORGANIC  WATER   EXTRACTION FOLLOWED BY GC/MS ANAL.    REF. 19
------------------------------------------------------------------------------

      PERFORMANCE AUDIT              AUDIT FREQUENCY          CONTROL LIMITS
      (FOR TOTAL METHOD)             (% OF ANALYSES)          SEE APP. 01 FOR CALCULATIONS
      ********************           *****************        *************************
      REAGENT BLANK                  10                       VARIABLE     UG/L
      DUPLICATE ANALYSES                                                   RELATIVE PERCENT DIFFERENCE
      SPIKED SAMPLES                                                       % LOSS OR GAIN OF SPIKE
      LAB. CONTROL STANDARD          5                        20           RELATIVE PERCENT ERROR
      REFERENCE STANDARDS            5                        20           RELATIVE PERCENT ERROR

         PARTIAL METHOD AUDIT     AUDIT TYPE           AUDIT FREQUENCY     CONTROL LIMITS
         ********************     **********           ***************     **************
     1.
     2.
     3.
     4.
     5.

         INSTRUMENT AUDITS        AUDIT TYPE           AUDIT FREQUENCY     CONTROL LIMITS
         *****************        **********           ***************     **************
     1.  CALIBRATION AS           SPECIFIED            IN REFERENCE
     2.
     3.
     4.
     5.

APPROXIMATE DETECTION LIMIT 10 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 10 UG/L TO NEAT UG/L

      PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
10.5

QUALITY ASSURANCE DATA FOR TREFLAN

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	$	METHOD REFERENCE
640	90003	TREFLAN	WATER	DUAL COLUMN-ELECTRON CAPTURE-GC	N	Y	REF. 5

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
******************	*****************	*************************	
REAGENT BLANK	5	4	NG/L
DUPLICATE ANALYSES	5	50	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	5	50	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	QUARTERLY	50	RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	******************	**********	**************	**************
1.	EXTRACTION EFFICIENCY		2	ABOVE 90%
2.	FLORISIL EFFICIENCY		2	ABOVE 90%
3.	SILICIC ACID EFFICIENCY		0.5	ABOVE 90%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	****************	**********	**************	**************
1.	RETENTION TIME		EACH RUN	5% FROM NORMAL
2.	DETECTOR-COMPUTER	SENSITIVITY	EACH RUN	10% FROM NORMAL
3.				
4.				
5.				

259<

APPROXIMATE DETECTION LIMIT 4 NG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 4 NG/L TO 500 NG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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U. S. EPA CENTRAL REGION 5 LAB                    6 / 30 / 1977
10.5
                    QUALITY ASSURANCE DATA FOR              HEXA-CHL-BENZEN

METHOD STORET PARAMETER          SAMPLE  METHOD
NUMBER NUMBER                    TYPE    DESCRIPTION                                  *    #   METHOD REFERENCE

 651   90001  HEXA-CHL-BENZEN    WATER   DUAL COLUMN-ELECTRON CAPTURE-GC               N    Y   REF.5

         PERFORMANCE AUDIT                AUDIT FREQUENCY              CONTROL LIMITS
         (FOR TOTAL METHOD)               (% OF ANALYSES)              SEE APP.#1 FOR CALCULATIONS
         *******************              ****************             ************************
         REAGENT BLANK                    5                            40          NG/L
         DUPLICATE ANALYSES               5                            50          RELATIVE PERCENT DIFFERENCE
         SPIKED SAMPLES                                                            % LOSS OR GAIN OF SPIKE
         LAB.CONTROL STANDARD             5                            50          RELATIVE PERCENT ERROR
         REFERENCE STANDARDS              QUARTERLY                    50          RELATIVE PERCENT ERROR

            PARTIAL METHOD AUDIT       AUDIT TYPE          AUDIT FREQUENCY         CONTROL LIMITS
            ********************       **********          ***************         **************
         1. EXTRACTION EFFICIENCY                          2                       ABOVE 90%
         2. FLORISIL EFFICIENCY                            2                       ABOVE 90%
         3. SILICIC ACID EFFICIENCY                        0.5                     ABOVE 90%
         4.
         5.

            INSTRUMENT AUDITS          AUDIT TYPE          AUDIT FREQUENCY         CONTROL LIMITS
            *****************          **********          ***************         **************
         1. RETENTION TIME                                 EACH RUN                5% FROM NORMAL
         2. DETECTOR-COMPUTER          SENSITIVITY         EACH RUN                10% FROM NORMAL
         3.
         4.
         5.

APPROXIMATE DETECTION LIMIT 40 NG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 40 NG/L TO 500 NG/L

      PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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I. S. EPA CENTRAL REGION 5 LAB              6 / 30 / 1977
10.5
                    QUALITY ASSURANCE DATA FOR            LINDANE

ETHOD STORET  PARAMETER          SAMPLE  METHOD                                      *   *   METHOD REFERENCE
UMBER NUMBER                     TYPE    DESCRIPTION

654   39782   LINDANE            WATER   DUAL COLUMN-ELECTRON CAPTURE-GC             N   Y   REF.5

     PERFORMANCE AUDIT                   AUDIT FREQUENCY         CONTROL LIMITS
     (FOR TOTAL METHOD)                  (% OF ANALYSES)         SEE APP.#1 FOR CALCULATIONS
     ********************                ****************        *************************
     REAGENT BLANK                       5                       4          NG/L
     DUPLICATE ANALYSES                  5                       50         RELATIVE PERCENT DIFFERENCE
     SPIKED SAMPLES                                                         % LOSS OR GAIN OF SPIKE
     LAB CONTROL STANDARD                5                       50         RELATIVE PERCENT ERROR
     REFERENCE STANDARDS                 QUARTERLY               50         RELATIVE PERCENT ERROR

        PARTIAL METHOD AUDIT      AUDIT TYPE           AUDIT FREQUENCY      CONTROL LIMITS
        ********************      **********           ***************      **************
     1. EXTRACTION EFFICIENCY                          2                    ABOVE 90%
     2. FLORISIL EFFICIENCY                            2                    ABOVE 90%
     3. SILICIC ACID EFFICIENCY                        0.5                  ABOVE 90%
     4.
     5.

        INSTRUMENT AUDITS         AUDIT TYPE           AUDIT FREQUENCY      CONTROL LIMITS
        *****************         **********           ***************      **************
     1. RETENTION TIME                                 EACH RUN             5% FROM NORMAL
     2. DETECTOR-COMPUTER         SENSITIVITY          EACH RUN             10% FROM NORMAL
     3.
     4.
     5.

PPROXIMATE DETECTION LIMIT 4 NG/L

ORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 4 NG/L TO 500 NG/L

     PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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J. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
10.5

QUALITY ASSURANCE DATA FOR BETA-BHC

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
657	90002	BETA-BHC	WATER	DUAL COLUMN-ELECTRON CAPTURE-GC	N	Y	REF. 5

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	****************	************************	
REAGENT BLANK	5	4	NG/L
DUPLICATE ANALYSES	5	50	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	5	50	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	QUARTERLY	50	RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	*************
1.	EXTRACTION EFFICIENCY		2	ABOVE 90%
2.	FLORISIL EFFICIENCY		2	ABOVE 90%
3.	SILICIC ACID EFFICIENCY		0.5	ABOVE 90%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	*************
1.	RETENTION TIME		EACH RUN	5% FROM NORMAL
2.	DETECTOR-COMPUTER	SENSITIVITY	EACH RUN	10% FROM NORMAL
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT 4 NG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 4 NG/L TO 500 NG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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J. S. EPA CENTRAL REGION 5 LAB                 6 / 30 / 1977
10.5
                      QUALITY ASSURANCE DATA FOR           ALDRIN

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METHOD STORET PARAMETER            SAMPLE   METHOD                            *   #   METHOD REFERENCE
NUMBER NUMBER                      TYPE     DESCRIPTION
------------------------------------------------------------------------------------------
 660   39330  ALDRIN               WATER    DUAL COLUMN-ELECTRON CAPTURE-GC   N   Y   REF.5
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       PERFORMANCE AUDIT            AUDIT FREQUENCY          CONTROL LIMITS
       (FOR TOTAL METHOD)           (% OF ANALYSES)          SEE APP. #1 FOR CALCULATIONS
       *********************        ******************       **************************
       REAGENT BLANK                5                        4        NG/L
       DUPLICATE ANALYSES           5                        50       RELATIVE PERCENT DIFFERENCE
       SPIKED SAMPLES                                                 % LOSS OR GAIN OF SPIKE
       LAB. CONTROL STANDARD        5                        50       RELATIVE PERCENT ERROR
       REFERENCE STANDARDS          QUARTERLY                50       RELATIVE PERCENT ERROR

          PARTIAL METHOD AUDIT    AUDIT TYPE      AUDIT FREQUENCY   CONTROL LIMITS
          ********************    **********      ***************   **************
       1.  EXTRACTION EFFICIENCY                  2                 ABOVE 90%
       2.  FLORISIL EFFICIENCY                    2                 ABOVE 90%
       3.  SILICIC ACID EFFICIENCY                0.5               ABOVE 90%
       4.
       5.

          INSTRUMENT AUDITS       AUDIT TYPE      AUDIT FREQUENCY   CONTROL LIMITS
          *****************       **********      ***************   **************
       1.  RETENTION TIME                         EACH RUN          5% FROM NORMAL
       2.  DETECTOR-COMPUTER      SENSITIVITY     EACH RUN          10% FROM NORMAL
       3.
       4.
       5.

APPROXIMATE DETECTION LIMIT 4 NG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 4 NG/L TO 500 NG/L

       PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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J. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
10.5

QUALITY ASSURANCE DATA FOR ZYTRON

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
663		ZYTRON	WATER	DUAL COLUMN-ELECTRON CAPTURE-GC	N	Y	REF.5

PERFORMANCE AUDIT (FOR TOTAL METHOD) ********************	AUDIT FREQUENCY (% OF ANALYSES) ******************	CONTROL LIMITS SEE APP.#1 FOR CALCULATIONS *************************	
REAGENT BLANK	5	10	NG/L
DUPLICATE ANALYSES	5	50	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	5	50	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	QUARTERLY	50	RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT ********************	AUDIT TYPE **********	AUDIT FREQUENCY ***************	CONTROL LIMITS **************
1.	EXTRACTION EFFICIENCY		2	ABOVE 90%
2.	FLORISIL EFFICIENCY		2	ABOVE 90%
3.	SILICIC ACID EFFICIENCY		0.5	ABOVE 90%
4.				
5.				

	INSTRUMENT AUDITS *****************	AUDIT TYPE **********	AUDIT FREQUENCY ***************	CONTROL LIMITS **************
1.	RETENTION TIME		EACH RUN	5% FROM NORMAL
2.	DETECTOR-COMPUTER	SENSITIVITY	EACH RUN	10% FROM NORMAL
3.				
4.				
5.				

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APPROXIMATE DETECTION LIMIT 10 NG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 10 NG/L TO 500 NG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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I. S. EPA CENTRAL REGION 5 LAB          6 / 30 / 1977
10.5
               QUALITY ASSURANCE DATA FOR          ISODRIN
-------------------------------------------------------------------------------
ETHOD STORET  PARAMETER         SAMPLE  METHOD                              *   #   METHOD REFERENCE
UMBER NUMBER                    TYPE    DESCRIPTION
-------------------------------------------------------------------------------
 666  39430   ISODRIN           WATER   DUAL COLUMN-ELECTRON CAPTURE-GC     N   Y   REF.5
-------------------------------------------------------------------------------

     PERFORMANCE AUDIT                    AUDIT FREQUENCY        CONTROL LIMITS
     (FOR TOTAL METHOD)                   (% OF ANALYSES)        SEE APP.#1 FOR CALCULATIONS
     ********************                 *****************      *************************
     REAGENT BLANK                        5                      6       NG/L
     DUPLICATE ANALYSES                   5                      50      RELATIVE PERCENT DIFFERENCE
     SPIKED SAMPLES                                                      % LOSS OR GAIN OF SPIKE
     LAB.CONTROL STANDARD                 5                      50      RELATIVE PERCENT ERROR
     REFERENCE STANDARDS                  QUARTERLY              [illegible]  RELATIVE PERCENT ERROR

          PARTIAL METHOD AUDIT    AUDIT TYPE          AUDIT FREQUENCY    CONTROL LIMITS
          ********************    **********          ***************    **************
     1.   EXTRACTION EFFICIENCY                       2                  ABOVE 90%
     2.   FLORISIL EFFICIENCY                         2                  ABOVE 90%
     3.   SILICIC ACID EFFICIENCY                     0.5                ABOVE 90%
     4.
     5.

          INSTRUMENT AUDITS       AUDIT TYPE          AUDIT FREQUENCY    CONTROL LIMITS
          *****************       **********          ***************    **************
     1.   RETENTION TIME                              EACH RUN           5% FROM NORMAL
     2.   DETECTOR-COMPUTER       SENSITIVITY         EACH RUN           10% FROM NORMAL
     3.
     4.
     5.

PPROXIMATE DETECTION LIMIT 6 NG/L

ORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 6 NG/L TO 500 NG/L

     PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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I. S. EPA CENTRAL REGION 5 LAB              6 / 30 / 1977
10.5
                     QUALITY ASSURANCE DATA FOR          HEPTACHLOR EPOX

ETHOD STORET  PARAMETER          SAMPLE  METHOD                                       *    #   METHOD REFERENCE
UMBER NUMBER                     TYPE    DESCRIPTION

 669   39420  HEPTACHLOR EPOX    WATER   DUAL COLUMN-ELECTRON CAPTURE-GC              N    Y   REF.5

     PERFORMANCE AUDIT                   AUDIT FREQUENCY         CONTROL LIMITS
     (FOR TOTAL METHOD)                  (% OF ANALYSES)         SEE APP.#1 FOR CALCULATIONS
     ********************                *****************       **************************
     REAGENT BLANK                       5                       4           NG/L
     DUPLICATE ANALYSES                  5                       50          RELATIVE PERCENT DIFFERENCE
     SPIKED SAMPLES                                                          % LOSS OR GAIN OF SPIKE
     LAB.CONTROL STANDARD                5                       50          RELATIVE PERCENT ERROR
     REFERENCE STANDARDS                 QUARTERLY               50          RELATIVE PERCENT ERROR

          PARTIAL METHOD AUDIT     AUDIT TYPE          AUDIT FREQUENCY     CONTROL LIMITS
          ********************     **********          ***************     **************
     1.   EXTRACTION EFFICIENCY                        2                   ABOVE 90%
     2.   FLORISIL EFFICIENCY                          2                   ABOVE 90%
     3.   SILICIC ACID EFFIENCY                        0.5                 ABOVE 90%
     4.
     5.

          INSTRUMENT AUDITS        AUDIT TYPE          AUDIT FREQUENCY     CONTROL LIMITS
          *****************        **********          ***************     **************
     1.   RETENTION TIME                               EACH RUN            5% FROM NORMAL
     2.   DETECTOR-COMPUTER        SENSITIVITY         EACH RUN            10% FROM NORMAL
     3.
     4.
     5.

PPROXIMATE DETECTION LIMIT 4 NG/L

ORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 4 NG/L TO 500 NG/L

     PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL  REGION 5 LAB                6 / 30 / 1977
 10.5
                   QUALITY  ASSURANCE  DATA  FOR          GAMMA  CHLORDANE
__________________________________________________________________________
METHOD STORET  PARAMETER          SAMPLE   METHOD                            *    #   METHOD REFERENCE
NUMBER NUMBER                     TYPE     DESCRIPTION
__________________________________________________________________________
 672           GAMMA CHLORDANE    WATER    DUAL COLUMN-ELECTRON CAPTURE-GC   N    Y   REF.5
__________________________________________________________________________

          PERFORMANCE AUDIT               AUDIT FREQUENCY           CONTROL LIMITS
          (FOR TOTAL METHOD)              (% OF ANALYSES)           SEE APP.#1 FOR CALCULATIONS
          ******************              ***************           *************************
          REAGENT BLANK                   5                         4         NG/L
          DUPLICATE ANALYSES              5                         50        RELATIVE PERCENT DIFFERENCE
          SPIKED SAMPLES                                                      % LOSS OR GAIN OF SPIKE
          LAB.CONTROL STANDARD            5                         50        RELATIVE PERCENT ERROR
          REFERENCE STANDARDS             QUARTERLY                 50        RELATIVE PERCENT ERROR

             PARTIAL METHOD AUDIT      AUDIT TYPE           AUDIT FREQUENCY         CONTROL LIMITS
             ********************      **********           ***************         **************
          1.  EXTRACTION EFFICIENCY                          2                       ABOVE 90%
          2.  FLORISIL EFFICIENCY                            2                       ABOVE 90%
          3.  SILICIC ACID EFFICIENCY                        0.5                     ABOVE 90%
          4.
          5.

             INSTRUMENT AUDITS         AUDIT TYPE           AUDIT FREQUENCY         CONTROL LIMITS
             *****************         **********           ***************         **************
          1.  RETENTION TIME                                 EACH RUN                5% FROM NORMAL
          2.  DETECTOR-COMPUTER        SENSITIVITY           EACH RUN                10% FROM NORMAL
          3.
          4.
          5.

APPROXIMATE DETECTION LIMIT 4 NG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 4 NG/L TO 500 NG/L

     PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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J. S. EPA CENTRAL REGION 5 LAB              6 / 30 / 1977
10.5
                  QUALITY ASSURANCE DATA FOR              O-P'DDE

METHOD STORET PARAMETER          SAMPLE  METHOD
NUMBER NUMBER                    TYPE    DESCRIPTION                                   *   # . METHOD REFERENCE

 675          O-P'DDE            WATER   DUAL COLUMN-ELECTRON CAPTURE-GC               N   Y   REF.5

          PERFORMANCE AUDIT                AUDIT FREQUENCY          CONTROL LIMITS
          (FOR TOTAL METHOD)               (% OF ANALYSES)          SEE APP.#1 FOR CALCULATIONS
          ********************             *****************        *************************
          REAGENT BLANK                    5                        6        NG/L
          DUPLICATE ANALYSES               5                        50       RELATIVE PERCENT DIFFERENCE
          SPIKED SAMPLES                                                     % LOSS OR GAIN OF SPIKE
          LAB.CONTROL STANDARD             5                        50       RELATIVE PERCENT ERROR
          REFERENCE STANDARDS              QUARTERLY                50       RELATIVE PERCENT ERROR

             PARTIAL METHOD AUDIT       AUDIT TYPE      AUDIT FREQUENCY     CONTROL LIMITS
             ********************       **********      ***************     **************
          1. EXTRACTION EFFICIENCY                      2                   ABOVE 90%
          2. FLORISIL EFFICIENCY                        2                   ABOVE 90%
          3. SILICIC ACID EFFICIENCY                    0.5                 ABOVE 90%
          4.
          5.

             INSTRUMENT AUDITS          AUDIT TYPE      AUDIT FREQUENCY     CONTROL LIMITS
             *****************          **********      ***************     **************
          1. RETENTION TIME                             EACH RUN            5% FROM NORMAL
          2. DETECTOR-COMPUTER          SENSITIVITY     EACH RUN            10% FROM NORMAL
          3.
          4.
          5.

APPROXIMATE DETECTION LIMIT 6 NG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 6 NG/L TO 500 NG/L

     PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA  CENTRAL  REGION 5 LAB                       6 / 30 / 1977
10.5
                  QUALITY  ASSURANCE  DATA  FOR                      P-P'DDE
-----------------------------------------------------------------------------
                                                              *    #    METHOD REFERENCE
METHOD STORET  PARAMETER          SAMPLE   METHOD
NUMBER NUMBER                     TYPE     DESCRIPTION
-----------------------------------------------------------------------------
[illegible]           P-P'DDE            WATER    DUAL COLUMN-ELECTRON CAPTURE-GC      N    Y    REF.5
-----------------------------------------------------------------------------

        PERFORMANCE AUDIT                AUDIT FREQUENCY           CONTROL LIMITS
        (FOR TOTAL METHOD)               (% OF ANALYSES)           SEE APP.#1 FOR CALCULATIONS
        ********************             *****************         **************************
        REAGENT BLANK                    5                         6          NG/L
        DUPLICATE ANALYSES               5                         50         RELATIVE PERCENT DIFFERENCE
        SPIKED SAMPLES                                                        % LOSS OR GAIN OF SPIKE
        LAB CONTROL STANDARD             5                         50         RELATIVE PERCENT ERROR
        REFERENCE STANDARDS              QUARTERLY                 50         RELATIVE PERCENT ERROR

           PARTIAL METHOD AUDIT      AUDIT TYPE            AUDIT FREQUENCY       CONTROL LIMITS
           ********************      **********            ***************       **************
        1. EXTRACTION EFFICIENCY                           2                     ABOVE 90%
        2. FLORISIL EFFICIENCY                             2                     ABOVE 90%
        3. SILICIC ACID EFFICIENCY                         0.5                   ABOVE 90%
        4.
        5.

           INSTRUMENT AUDITS         AUDIT TYPE            AUDIT FREQUENCY       CONTROL LIMITS
           *****************         **********            ***************       **************
        1. RETENTION TIME                                  EACH RUN              5% FROM NORMAL
        2. DETECTOR-COMPUTER         SENSITIVITY           EACH RUN              10% FROM NORMAL
        3.
        4.
        5.

APPROXIMATE DETECTION LIMIT 6 NG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 6 NG/L TO 500 NG/L

     PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB                6 / 30 / 1977
10.5
                    QUALITY ASSURANCE DATA FOR          O P'-DDD

METHOD STORET PARAMETER          SAMPLE   METHOD                                          *    @    METHOD REFERENCE
NUMBER NUMBER                    TYPE     DESCRIPTION

 601          O P'-DDD           WATER    DUAL COLUMN-ELECTRON CAPTURE-GC                 N    Y    REF.5

         PERFORMANCE AUDIT                   AUDIT FREQUENCY              CONTROL LIMITS
         (FOR TOTAL METHOD)                  (% OF ANALYSES)              SEE APP.01 FOR CALCULATIONS
         ********************                ****************             *************************
         REAGENT BLANK                       5                            6         NG/L
         DUPLICATE ANALYSES                  5                            50        RELATIVE PERCENT DIFFERENCE
         SPIKED SAMPLES                                                             % LOSS OR GAIN OF SPIKE
         LAB. CONTROL STANDARD               5                            50        RELATIVE PERCENT ERROR
         REFERENCE STANDARDS                 QUARTERLY                    50        RELATIVE PERCENT ERROR

            PARTIAL METHOD AUDIT      AUDIT TYPE              AUDIT FREQUENCY      CONTROL LIMITS
            ********************      **********              ***************      **************
         1. EXTRACTION EFFICIENCY                             2                    ABOVE 90%
         2. FLORISIL EFFICIENCY                               2                    ABOVE 90%
         3. SILICIC ACID EFFICIENCY                           0.5                  ABOVE 90%
         4.
         5.

            INSTRUMENT AUDITS         AUDIT TYPE              AUDIT FREQUENCY      CONTROL LIMITS
            *****************         **********              ***************      **************
         1. RETENTION TIME                                    EACH RUN             5% FROM NORMAL
         2. DETECTOR-COMPUTER         SENSITIVITY             EACH RUN             10% FROM NORMAL
         3.
         4.
         5.

APPROXIMATE DETECTION LIMIT 6 NG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 6 NG/L TO 500 NG/L

         PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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J. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
10.5

QUALITY ASSURANCE DATA FOR O P'DDT

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	8	METHOD REFERENCE
604		O P'DDT	WATER	DUAL COLUMN-ELECTRON CAPTURE-GC	N	Y	REF. 5

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. 01 FOR CALCULATIONS	
********************	*****************	**************************	
REAGENT BLANK	5	6	NG/L
DUPLICATE ANALYSES	5	50	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB CONTROL STANDARD	5	50	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	QUARTERLY	50	RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*******************	**********	***************	**************
1.	EXTRACTION EFFICIENCY		2	ABOVE 90%
2.	FLORISIL EFFICIENCY		2	ABOVE 90%
3.	SILICIC ACID EFFICIENCY		0.5	ABOVE 90%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	******************	**********	***************	**************
1.	RETENTION TIME		EACH RUN	5% FROM NORMAL
2.	DETECTOR-COMPUTER	SENSITIVITY	EACH RUN	10% FROM NORMAL
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT 6 NG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 6 NG/L TO 500 NG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

J. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977

10.5

QUALITY ASSURANCE DATA FOR P P′-DDD

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	*	METHOD REFERENCE
487		P P′-DDD	WATER	DUAL COLUMN-ELECTRON CAPTURE-GC	N	Y	REF. 5

PERFORMANCE AUDIT (FOR TOTAL METHOD) ********************	AUDIT FREQUENCY (% OF ANALYSES) ****************	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS **************************	
REAGENT BLANK	5	6	NG/L
DUPLICATE ANALYSES	5	50	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	5	50	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	QUARTERLY	50	RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT ********************	AUDIT TYPE **********	AUDIT FREQUENCY ***************	CONTROL LIMITS *************
1.	EXTRACTION EFFICIENCY		2	ABOVE 90%
2.	FLORISIL EFFICIENCY		2	ABOVE 90%
3.	SILICIC ACID EFFICIENCY		0.5	ABOVE 90%
4.				
5.				

	INSTRUMENT AUDITS *****************	AUDIT TYPE **********	AUDIT FREQUENCY ***************	CONTROL LIMITS *************
1.	RETENTION TIME		EACH RUN	5% FROM NORMAL
2.	DETECTOR-COMPUTER	SENSITIVITY	EACH RUN	10% FROM NORMAL
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT 6 NG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 6 NG/L TO 500 NG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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U. S. EPA CENTRAL  REGION 5 LAB          6 / 30 / 1977
 10.5
                   QUALITY ASSURANCE DATA FOR          P P'-DDT

METHOD STORET  PARAMETER          SAMPLE   METHOD                                      *    *    METHOD REFERENCE
NUMBER NUMBER                     TYPE     DESCRIPTION

 690           P P'-DDT           WATER    DUAL COLUMN-ELECTRON CAPTURE-GC             N    Y    REF.5

          PERFORMANCE AUDIT                    AUDIT FREQUENCY            CONTROL LIMITS
          (FOR TOTAL METHOD)                   (% OF ANALYSES)            SEE APP. #1 FOR CALCULATIONS
          ********************                 *****************          *************************
          REAGENT BLANK                        5                          6                NG/L
          DUPLICATE ANALYSES                   5                          50               RELATIVE PERCENT DIFFERENCE
          SPIKED SAMPLES                                                                   % LOSS OR GAIN OF SPIKE
          LAB. CONTROL STANDARD                5                          50               RELATIVE PERCENT ERROR
          REFERENCE STANDARDS                  QUARTERLY                  50               RELATIVE PERCENT ERROR

               PARTIAL METHOD AUDIT       AUDIT TYPE           AUDIT FREQUENCY        CONTROL LIMITS
               ********************       **********           ***************        **************
          1.   EXTRACTION EFFICIENCY                           2                      ABOVE 90%
          2.   FLORISIL EFFICIENCY                             2                      ABOVE 90%
          3.   SILICIC ACID EFFICIENCY                         0.5                    ABOVE 90%
          4.
          5.

               INSTRUMENT AUDITS          AUDIT TYPE           AUDIT FREQUENCY        CONTROL LIMITS
               *****************          **********           ***************        **************
          1.   RETENTION TIME                                  EACH RUN               5% FROM NORMAL
          2.   DETECTOR COMPUTER          SENSITIVITY          EACH RUN               10% FROM NORMAL
          3.
          4.
          5.

APPROXIMATE DETECTION LIMIT 6 NG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 6 NG/L TO 500 NG/L

          PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB              6 / 30 / 1977
10.5
                  QUALITY ASSURANCE DATA FOR         MIREX
------------------------------------------------------------------------------------------
METHOD STORET  PARAMETER        SAMPLE   METHOD                                   *   #   METHOD REFERENCE
NUMBER NUMBER                   TYPE     DESCRIPTION
------------------------------------------------------------------------------------------
693            MIREX            WATER    DUAL COLUMN-ELECTRON CAPTURE-GC          N   Y   REF. 5
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        PERFORMANCE AUDIT                AUDIT FREQUENCY        CONTROL LIMITS
        (FOR TOTAL METHOD)               (% OF ANALYSES)        SEE APP. #1 FOR CALCULATIONS
        *******************              ***************        *************************
        REAGENT BLANK                    5                      6        NG/L
        DUPLICATE ANALYSES               5                      50       RELATIVE PERCENT DIFFERENCE
        SPIKED SAMPLES                                                   % LOSS OR GAIN OF SPIKE
        LAB CONTROL STANDARD             5                      50       RELATIVE PERCENT ERROR
        REFERENCE STANDARDS              QUARTERLY              50       RELATIVE PERCENT ERROR

           PARTIAL METHOD AUDIT       AUDIT TYPE          AUDIT FREQUENCY     CONTROL LIMITS
           ********************       **********          ***************     *************
        1. EXTRACTION EFFICIENCY                          2                   ABOVE 90%
        2. FLORISIL EFFICIENCY                            2                   ABOVE 90%
        3. SILICIC ACID EFFICIENCY                        0.5                 ABOVE 90%
        4.
        5.

           INSTRUMENT AUDITS          AUDIT TYPE          AUDIT FREQUENCY     CONTROL LIMITS
           *****************          **********          ***************     *************
274<    1. RETENTION TIME                                 EACH RUN            5% FROM NORMAL
        2. DETECTOR-COMPUTER          SENSITIVITY         EACH RUN            10% FROM NORMAL
        3.
        4.
        5.

APPROXIMATE DETECTION LIMIT 6 NG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 6 NG/L TO 500 NG/L

     PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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I. S. EPA CENTRAL REGION 5 LAB                  6 / 30 / 1977
10.5
                 QUALITY ASSURANCE DATA FOR           METHOXYCLOR

ETHOD STORET PARAMETER          SAMPLE  METHOD
UMBER NUMBER                    TYPE    DESCRIPTION                        *   #   METHOD REFERENCE

696   39480  METHOXYCLOR        WATER   DUAL COLUMN-ELECTRON CAPTURE-GC    N   Y   REF.5

     PERFORMANCE AUDIT                   AUDIT FREQUENCY          CONTROL LIMITS
     (FOR TOTAL METHOD)                  (% OF ANALYSES)          SEE APP.#1 FOR CALCULATIONS
     *******************                 ****************         *************************
     REAGENT BLANK                       5                        20        NG/L
     DUPLICATE ANALYSES                  5                        50        RELATIVE PERCENT DIFFERENCE
     SPIKED SAMPLES                                                         % LOSS OR GAIN OF SPIKE
     LAB CONTROL STANDARD                5                        50        RELATIVE PERCENT ERROR
     REFERENCE STANDARDS                 QUARTERLY                50        RELATIVE PERCENT ERROR

        PARTIAL METHOD AUDIT        AUDIT TYPE         AUDIT FREQUENCY     CONTROL LIMITS
        ********************        **********         ***************     *************
     1. EXTRACTION EFFICIENCY                          2                   ABOVE 90%
     2. FLORISIL EFFICIENCY                            2                   ABOVE 90%
     3. SILICIC ACID EFFICIENCY                        0.5                 ABOVE 90%
     4.
     5.

        INSTRUMENT AUDITS           AUDIT TYPE         AUDIT FREQUENCY     CONTROL LIMITS
        *****************           **********         ***************     *************
     1. RETENTION TIME                                 EACH RUN            5% FROM NORMAL
     2. DETECTOR-COMPUTER           SENSITIVITY        EACH RUN            10% FROM NORMAL
     3.
     4.
     5.

PPROXIMATE DETECTION LIMIT 20 NG/L

ORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 20 NG/L TO 500 NG/L

      PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL  REGION 5 LAB                    6 / 30 / 1977
10.5
                QUALITY  ASSURANCE  DATA  FOR             2-4-D  ISOPROPYL
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METHOD STORET  PARAMETER         SAMPLE   METHOD                                  *    #    METHOD REFERENCE
NUMBER NUMBER                    TYPE     DESCRIPTION
------------------------------------------------------------------------------------------
 699           2-4-D ISOPROPYL   WATER    DUAL COLUMN-ELECTRON CAPTURE-GC         N    Y    REF.5
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         PERFORMANCE AUDIT                  AUDIT FREQUENCY       CONTROL LIMITS
         (FOR TOTAL METHOD)                 (% OF ANALYSES)       SEE APP.#1 FOR CALCULATIONS
         *******************                ***************       **************************
         REAGENT BLANK                      5                     40        NG/L
         DUPLICATE ANALYSES                 5                     50        RELATIVE PERCENT DIFFERENCE
         SPIKED SAMPLES                                                     % LOSS OR GAIN OF SPIKE
         LAB. CONTROL STANDARD              5                     50        RELATIVE PERCENT ERROR
         REFERENCE STANDARDS                QUARTERLY             50        RELATIVE PERCENT ERROR

            PARTIAL METHOD AUDIT      AUDIT TYPE            AUDIT FREQUENCY      CONTROL LIMITS
            ********************      **********            ***************      **************
         1. EXTRACTION EFFICIENCY                           2                    ABOVE 90%
         2. FLORISIL EFFICIENCY                             2                    ABOVE 90%
         3. SILICIC ACID EFFICIENCY                         0.5                  ABOVE 90%
         4.
         5.

            INSTRUMENT AUDITS         AUDIT TYPE            AUDIT FREQUENCY      CONTROL LIMITS
            *****************         **********            ***************      **************
         1. RETENTION TIME                                  EACH RUN             5% FROM NORMAL
         2. DETECTOR-COMPUTER         SENSITIVITY           EACH RUN             10% FROM NORMAL
         3.
         4.
         5.

APPROXIMATE DETECTION LIMIT 40 NG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 40 NG/L TO 1000 NG/L

      PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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J. S. EPA CENTRAL REGION 5 LAB              6 / 30 / 1977
10.5
                      QUALITY ASSURANCE DATA FOR          DI-N-BUTYL PHTH
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METHOD STORET PARAMETER        SAMPLE  METHOD                                  *   #   METHOD REFERENCE
NUMBER NUMBER                  TYPE    DESCRIPTION
--------------------------------------------------------------------------------------------
 702          DI-N-BUTYL PHTH  WATER   DUAL COLUMN-ELECTRON CAPTURE-GC         N   Y   REF: 5
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          PERFORMANCE AUDIT              AUDIT FREQUENCY       CONTROL LIMITS
          (FOR TOTAL METHOD)             (% OF ANALYSES)       SEE APP. #1 FOR CALCULATIONS
          ********************           *****************     *************************
          REAGENT BLANK                  5                     2000       NG/L
          DUPLICATE ANALYSES             5                     50         RELATIVE PERCENT DIFFERENCE
          SPIKED SAMPLES                                                  % LOSS OR GAIN OF SPIKE
          LAB CONTROL STANDARD           5                     50         RELATIVE PERCENT ERROR
          REFERENCE STANDARDS            QUARTERLY             50         RELATIVE PERCENT ERROR

             PARTIAL METHOD AUDIT     AUDIT TYPE          AUDIT FREQUENCY    CONTROL LIMITS
             ********************     **********          ***************    **************
          1. EXTRACTION EFFICIENCY                        2                  ABOVE 90%
          2. FLORISIL EFFICIENCY                          2                  ABOVE 90%
          3. SILICIC ACID EFFICIENCY                      0.5                ABOVE 90%
          4.
          5.

             INSTRUMENT AUDITS        AUDIT TYPE          AUDIT FREQUENCY    CONTROL LIMITS
             *****************        **********          ***************    **************
          1. RETENTION TIME                               EACH RUN           5% FROM NORMAL
          2. DETECTOR-COMPUTER        SENSITIVITY         EACH RUN           10% FROM NORMAL
          3.
          4.
          5.

APPROXIMATE DETECTION LIMIT 2000 NG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 2000 NG/L TO 200000 NG/L

          PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL  REGION 5 LAB              6 / 30 / 1977
 10.5
                   QUALITY  ASSURANCE  DATA  FOR        DCPA

METHOD STORET  PARAMETER          SAMPLE   METHOD                                        *    #    METHOD REFERENCE
NUMBER NUMBER                     TYPE     DESCRIPTION

 705   39770   DCPA               WATER    DUAL COLUMN-ELECTRON CAPTURE-GC               N    Y    REF.5

        PERFORMANCE AUDIT                  AUDIT FREQUENCY                CONTROL LIMITS
        (FOR TOTAL METHOD)                 (X OF ANALYSES)                SEE APP.#1 FOR CALCULATIONS
        ********************               *****************              **************************
        REAGENT BLANK                      5                              6              NG/L
        DUPLICATE ANALYSES                 5                              50             RELATIVE PERCENT DIFFERENCE
        SPIKED SAMPLES                                                                   % LOSS OR GAIN OF SPIKE
        LAB.CONTROL STANDARD               5                              50             RELATIVE PERCENT ERROR
        REFERENCE STANDARDS                QUARTERLY                      50             RELATIVE PERCENT ERROR

             PARTIAL METHOD AUDIT     AUDIT TYPE             AUDIT FREQUENCY          CONTROL LIMITS
             ********************     **********             ***************          **************
        1.   EXTRACTION EFFICIENCY                           2                        ABOVE 90%
        2.   FLORISIL EFFICIENCY                             2                        ABOVE 90%
        3.   SILICIC ACID EFFICIENCY                         0.5                      ABOVE 90%
        4.
        5.

             INSTRUMENT AUDITS        AUDIT TYPE             AUDIT FREQUENCY          CONTROL LIMITS
             *****************        **********             ***************          **************
        1.   RETENTION TIME                                  EACH RUN                 5% FROM NORMAL
        2.   DETECTOR-COMPUTER        SENSITIVITY            EACH RUN                 10% FROM NORMAL
        3.
        4.
        5.

APPROXIMATE DETECTION LIMIT 6 NG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 6 NG/L TO 500 NG/L

        PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL  REGION  5  LAB              6 / 30 / 1977
10.5
                    QUALITY  ASSURANCE  DATA  FOR           ENDOSULFAN  I

METHOD STORET  PARAMETER          SAMPLE   METHOD                                        *    #    METHOD REFERENCE
NUMBER NUMBER                     TYPE     DESCRIPTION

 700           ENDOSULFAN I       WATER    DUAL COLUMN-ELECTRON CAPTURE-GC                N    Y    REF.5

          PERFORMANCE AUDIT                    AUDIT FREQUENCY           CONTROL LIMITS
          (FOR TOTAL METHOD)                   (% OF ANALYSES)           SEE APP.#1 FOR CALCULATIONS
          ********************                 *****************         *************************
          REAGENT BLANK                        5                         10             NG/L
          DUPLICATE ANALYSES                   5                         50             RELATIVE PERCENT DIFFERENCE
          SPIKED SAMPLES                                                                % LOSS OR GAIN OF SPIKE
          LAB.CONTROL STANDARD                 5                         50             RELATIVE PERCENT ERROR
          REFERENCE STANDARDS                  QUARTERLY                 50             RELATIVE PERCENT ERROR

               PARTIAL METHOD AUDIT     AUDIT TYPE           AUDIT FREQUENCY            CONTROL LIMITS
               ********************     **********           ***************            **************
          1.   EXTRACTION EFFICIENCY                         2                          ABOVE 90%
          2.   FLORISIL EFFICIENCY                           2                          ABOVE 90%
          3.   SILICIC ACID EFFICIENCY                       0.5                        ABOVE 90%
          4.
          5.

               INSTRUMENT AUDITS        AUDIT TYPE           AUDIT FREQUENCY            CONTROL LIMITS
               *****************        **********           ***************            **************
          1.   RETENTION TIME                                EACH RUN                   5% FROM NORMAL
          2.   DETECTOR-COMPUTER        SENSITIVITY          EACH RUN                   10% FROM NORMAL
          3.
          4.
          5.

APPROXIMATE DETECTION LIMIT 10 NG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 10 NG/L TO 500 NG/L

          PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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J. S. EPA CENTRAL REGION 5 LAB                6 / 30 / 1977
10.5
                     QUALITY ASSURANCE DATA FOR         DIELDRIN

METHOD STORET PARAMETER          SAMPLE   METHOD                                     *    #    METHOD REFERENCE
NUMBER NUMBER                    TYPE     DESCRIPTION

 711   39380  DIELDRIN           WATER    DUAL COLUMN-ELECTRON CAPTURE-GC            N    Y    REF.5

        PERFORMANCE AUDIT                  AUDIT FREQUENCY                CONTROL LIMITS
        (FOR TOTAL METHOD)                 (% OF ANALYSES)                SEE APP.#1 FOR CALCULATIONS
        ********************               *****************              ***************************
        REAGENT BLANK                      5                              10          NG/L
        DUPLICATE ANALYSES                 5                              50          RELATIVE PERCENT DIFFERENCE
        SPIKED SAMPLES                                                                % LOSS OR GAIN OF SPIKE
        LAB.CONTROL STANDARD               5                              50          RELATIVE PERCENT ERROR
        REFERENCE STANDARDS                QUARTERLY                      50          RELATIVE PERCENT ERROR

              PARTIAL METHOD AUDIT      AUDIT TYPE             AUDIT FREQUENCY        CONTROL LIMITS
              ********************      **********             ***************        **************
        1.    EXTRACTION EFFICIENCY                            2                      ABOVE 90%
        2.    FLORISIL EFFICIENCY                              2                      ABOVE 90%
        3.    SILICIC ACID EFFICIENCY                          0.5                    ABOVE 90%
        4.
        5.

              INSTRUMENT AUDITS         AUDIT TYPE             AUDIT FREQUENCY        CONTROL LIMITS
              *****************         **********             ***************        **************
        1.    RETENTION TIME                                   EACH RUN               5% FROM NORMAL
        2.    DETECTOR-COMPUTER         SENSITIVITY            EACH RUN               10% FROM NORMAL
        3.
        4.
        5.

APPROXIMATE DETECTION LIMIT 10 NG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 10 NG/L TO 500 NG/L

     PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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J. S. EPA CENTRAL REGION 5 LAB   6 / 30 / 1977
10.5

QUALITY ASSURANCE DATA FOR ENDRIN

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	@	METHOD REFERENCE
714	39390	ENDRIN	WATER	DUAL COLUMN-ELECTRON CAPTURE-GC	N	Y	REF. 5

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	*****************	**************************	
REAGENT BLANK	5	6	NG/L
DUPLICATE ANALYSES	5	50	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	5	50	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	QUARTERLY	50	RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.	EXTRACTION EFFICIENCY		2	ABOVE 90%
2.	FLORISIL EFFICIENCY		2	ABOVE 90%
3.	SILICIC ACID EFFICIENCY		0.5	ABOVE 90%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.	RETENTION TIME		EACH RUN	5% FROM NORMAL
2.	DETECTOR-COMPUTER	SENSITIVITY	EACH RUN	10% FROM NORMAL
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT 6 NG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 6 NG/L TO 500 NG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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U. S. EPA CENTRAL REGION 5 LAB                 6 / 30 / 1977
10.5
                    QUALITY ASSURANCE DATA FOR              CHLOROBENZILATE

METHOD STORET  PARAMETER           SAMPLE  METHOD                                   *    #    METHOD REFERENCE
NUMBER NUMBER                      TYPE    DESCRIPTION
 717   39460   CHLOROBENZILATE     WATER   DUAL COLUMN-ELECTRON CAPTURE-GC          N    Y    REF. 5

         PERFORMANCE AUDIT               AUDIT FREQUENCY         CONTROL LIMITS
         (FOR TOTAL METHOD)              (% OF ANALYSES)         SEE APP. #1 FOR CALCULATIONS
         ********************            ****************        ************************
         REAGENT BLANK                   5                       20          NG/L
         DUPLICATE ANALYSES              5                       50          RELATIVE PERCENT DIFFERENCE
         SPIKED SAMPLES                                                      % LOSS OR GAIN OF SPIKE
         LAB. CONTROL STANDARD           5                       50          RELATIVE PERCENT ERROR
         REFERENCE STANDARDS             QUARTERLY               50          RELATIVE PERCENT ERROR

            PARTIAL METHOD AUDIT      AUDIT TYPE            AUDIT FREQUENCY      CONTROL LIMITS
            ********************      **********            ***************      **************
         1. EXTRACTION EFFICIENCY                           2                    ABOVE 90%
         2. FLORISIL EFFICIENCY                             2                    ABOVE 90%
         3. SILICIC ACID EFFICIENCY                         0.5                  ABOVE 90%
         4.
         5.

            INSTRUMENT AUDITS         AUDIT TYPE            AUDIT FREQUENCY      CONTROL LIMITS
            *****************         **********            ***************      **************
         1. RETENTION TIME                                  EACH RUN             5% FROM NORMAL
         2. DETECTOR-COMPUTER         SENSITIVITY           EACH RUN             10% FROM NORMAL
         3.
         4.
         5.

APPROXIMATE DETECTION LIMIT 20 NG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 20 NG/L TO 500 NG/L

     PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB                    6 / 30 / 1977
10.5
                    QUALITY ASSURANCE DATA FOR              ENDOSULFAN II

METHOD STORET  PARAMETER        SAMPLE   METHOD
NUMBER NUMBER                   TYPE     DESCRIPTION                            *   #   METHOD REFERENCE

 720           ENDOSULFAN II    WATER    DUAL COLUMN-ELECTRON CAPTURE-GC        N   Y   REF.5

      PERFORMANCE AUDIT                  AUDIT FREQUENCY          CONTROL LIMITS
      (FOR TOTAL METHOD)                 (% OF ANALYSES)          SEE APP.#1 FOR CALCULATIONS
      ******************                 ****************         ************************
      REAGENT BLANK                      5                        10       NG/L
      DUPLICATE ANALYSES                 5                        50       RELATIVE PERCENT DIFFERENCE
      SPIKED SAMPLES                                                       % LOSS OR GAIN OF SPIKE
      LAB.CONTROL STANDARD               5                        50       RELATIVE PERCENT ERROR
      REFERENCE STANDARDS                QUARTERLY                50       RELATIVE PERCENT ERROR

         PARTIAL METHOD AUDIT      AUDIT TYPE          AUDIT FREQUENCY     CONTROL LIMITS
         ********************      **********          ***************     *************
      1. EXTRACTION EFFICIENCY                         2                   ABOVE 90%
      2. FLORISIL EFFICIENCY                           2                   ABOVE 90%
      3. SILICIC ACID EFFICIENCY                       0.5                 ABOVE 90%
      4.
      5.

         INSTRUMENT AUDITS         AUDIT TYPE          AUDIT FREQUENCY     CONTROL LIMITS
         *****************         **********          ***************     *************
      1. RETENTION TIME                                EACH RUN            5% FROM NORMAL
      2. DETECTOR-COMPUTER         SENSITIVITY         EACH RUN            10% FROM NORMAL
      3.
      4.
      5.

APPROXIMATE DETECTION LIMIT 10 NG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 10 NG/L TO 500 NG/L

      PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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J. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
10.5

QUALITY ASSURANCE DATA FOR DI-2 ETHYLHEXYL

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
723		DI-2 ETHYLHEXYL	WATER	DUAL COLUMN-ELECTRON CAPTURE-GC	N	Y	REF.5

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	*****************	**************************	
REAGENT BLANK	5	2000	NG/L
DUPLICATE ANALYSES	5	50	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	5	50	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	QUARTERLY	50	RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	*************
1.	EXTRACTION EFFICIENCY		2	ABOVE 90%
2.	FLORISIL EFFICIENCY		2	ABOVE 90%
3.	SILICIC ACID EFFICIENCY		0.5	ABOVE 90%
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	*************
1.	RETENTION TIME		EACH RUN	5% FROM NORMAL
2.	DETECTOR-COMPUTER	SENSITIVITY	EACH RUN	10% FROM NORMAL
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT 2000 NG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 2000 NG/L TO 200000 NG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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J. S. EPA CENTRAL REGION 5 LAB                  6 / 30 / 1977
10.5
                    QUALITY ASSURANCE DATA FOR               TETRAFIDON
------------------------------------------------------------------------------
                                                              *   @   METHOD REFERENCE
METHOD STORET PARAMETER          SAMPLE  METHOD
NUMBER NUMBER                    TYPE    DESCRIPTION
------------------------------------------------------------------------------
 726   39008  TETRAFIDON         WATER   DUAL COLUMN-ELECTRON CAPTURE-GC   N   Y   REF.5
------------------------------------------------------------------------------

      PERFORMANCE AUDIT                AUDIT FREQUENCY         CONTROL LIMITS
      (FOR TOTAL METHOD)               (% OF ANALYSES)         SEE APP. 01 FOR CALCULATIONS
      ***********************          ******************      ****************************
      REAGENT BLANK                    5                       50          NG/L
      DUPLICATE ANALYSES               5                       30          RELATIVE PERCENT DIFFERENCE
      SPIKED SAMPLES                                                       % LOSS OR GAIN OF SPIKE
      LAB CONTROL STANDARD             5                       50          RELATIVE PERCENT ERROR
      REFERENCE STANDARDS              QUARTERLY               50          RELATIVE PERCENT ERROR

         PARTIAL METHOD AUDIT       AUDIT TYPE          AUDIT FREQUENCY       CONTROL LIMITS
         ***********************    **********          ****************      **************
      1.  EXTRACTION EFFICIENCY                         2                     ABOVE 90%
      2.  FLORISIL EFFICIENCY                           2                     ABOVE 90%
      3.  SILICIC ACID EFFICIENCY                       0.5                   ABOVE 90%
      4.
      5.

         INSTRUMENT AUDITS          AUDIT TYPE          AUDIT FREQUENCY       CONTROL LIMITS
         *****************          **********          ****************      **************
      1.  RETENTION TIME                                EACH RUN              5% FROM NORMAL
      2.  DETECTOR-COMPUTER         SENSITIVITY         EACH RUN              10% FROM NORMAL
      3.
      4.
      5.
APPROXIMATE DETECTION LIMIT 50 NG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 50 NG/L TO 1000 NG/L

    PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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J. S. EPA CENTRAL REGION 5 LAB
10.5
                      QUALITY ASSURANCE DATA FOR            2-4-5-T
-------------------------------------------------------------------------------------------------
ETHOD STORET PARAMETER          SAMPLE  METHOD
UMBER NUMBER                    TYPE    DESCRIPTION                            *   @   METHOD REFERENCE
-------------------------------------------------------------------------------------------------
729   39740  2-4-5-T            WATER   METHYLATION AND GAS CHROMATOGRAPHY     N   N   NONE
-------------------------------------------------------------------------------------------------

      PERFORMANCE AUDIT                 AUDIT FREQUENCY         CONTROL LIMITS
      (FOR TOTAL METHOD)                (% OF ANALYSES)         SEE APP. #1 FOR CALCULATIONS
      ******************                ***************         *************************
      REAGENT BLANK                     5                       10       NG/L
      DUPLICATE ANALYSES                5                       20       RELATIVE PERCENT DIFFERENCE
      SPIKED SAMPLES                    5                       20       % LOSS OR GAIN OF SPIKE
      LAB. CONTROL STANDARD             5                       20       RELATIVE PERCENT ERROR
      REFERENCE STANDARDS               QUARTERLY               20       RELATIVE PERCENT ERROR

         PARTIAL METHOD AUDIT        AUDIT TYPE          AUDIT FREQUENCY         CONTROL LIMITS
         ********************        **********          ***************         **************
      1.  EXTRACTION                 % RECOVERY          EACH RUN                90%
      2.  METHYLATION                % PRODUCT           EACH RUN                90%
      3.
      4.
      5.

         INSTRUMENT AUDITS           AUDIT TYPE          AUDIT FREQUENCY         CONTROL LIMITS
         *****************           **********          ***************         **************
      1.  RETENTION TIME                                 EACH RUN                5% OF NORMAL
      2.  DETECTOR SENSITIVITY                           EACH RUN                10% OF NORMAL
      3.
      4.
      5.

APPROXIMATE DETECTION LIMIT 10 NG/L

ORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 10 NG/L TO 500 NG/L

      PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
10.5

QUALITY ASSURANCE DATA FOR 2-4-D

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
732	39730	2-4-D	WATER	METHYLATION AND GAS CHROMATOGRAPHY	N	N	NONE

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. B1 FOR CALCULATIONS	
********************	*****************	**************************	
REAGENT BLANK	5	10	NG/L
DUPLICATE ANALYSES	5	20	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	5	20	% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	5	20	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	QUARTERLY	20	RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.	EXTRACTION	% RECOVERY	EACH RUN	90%
2.	METHYLATION	% PRODUCT	EACH RUN	90%
3.				
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.	RETENTION TIME		EACH RUN	5% OF NORMAL
2.	DETECTOR SENSITIVITY		EACH RUN	10% OF NORMAL
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT 10 NG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 10 NG/L TO 500 NG/L

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-6370

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U. S. EPA CENTRAL REGION 5 LAB              6 / 30 / 1977
10.5
                       QUALITY ASSURANCE DATA FOR          TOXAPHENE

METHOD STORET  PARAMETER          SAMPLE   METHOD                                         *    #    METHOD REFERENCE
NUMBER NUMBER                     TYPE     DESCRIPTION

 735   39400   TOXAPHENE          WATER    EXTRACTION FLORISIL-GC                         N    N    NONE

          PERFORMANCE AUDIT                   AUDIT FREQUENCY          CONTROL LIMITS
          (FOR TOTAL METHOD)                  (% OF ANALYSES)          SEE APP. #1 FOR CALCULATIONS
          ********************                *****************        *************************
          REAGENT BLANK                       5.                       0.5      UG/L
          DUPLICATE ANALYSES                  5                        50       RELATIVE PERCENT DIFFERENCE
          SPIKED SAMPLES                                                        % LOSS OR GAIN OF SPIKE
          LAB. CONTROL STANDARD               5                        50       RELATIVE PERCENT ERROR
          REFERENCE STANDARDS                 QUARTERLY                50       RELATIVE PERCENT ERROR

             PARTIAL METHOD AUDIT     AUDIT TYPE            AUDIT FREQUENCY       CONTROL LIMITS
             ********************     **********            ***************       *************
          1.  EXTRACTION EFFICIENCY                         EACH RUN              80% RECOVERY
          2.  FLORISIL RECOVERY                             EACH RUN              80% RECOVERY
          3.
          4.
          5.

             INSTRUMENT AUDITS        AUDIT TYPE            AUDIT FREQUENCY       CONTROL LIMITS
             *****************        **********            ***************       *************
          1.  RETENTION TIME                                EACH RUN              5% OF NORMAL
          2.  DETECTOR SENSITIVITY                          EACH RUN              10% OF NORMAL
          3.
          4.
          5.

APPROXIMATE DETECTION LIMIT 0.5 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0.5 UG/L TO 50 UG/L

          PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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J. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
10.5

QUALITY ASSURANCE DATA FOR OIL&GREASE

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	@	METHOD REFERENCE
738	00561	OIL&GREASE	SEDIMENT	SOXHLET AND MODIFIED IR PROCEDURE	N	N	REF2-PAGE 232

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. 01 FOR CALCULATIONS	
********************	******************	**************************	
REAGENT BLANK	5	2	NG/KG
DUPLICATE ANALYSES	5	20	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES	5	20	% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	5	20	RELATIVE PERCENT ERROR
REFERENCE STANDARDS			RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.				
2.				
3.				
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	******************	**********	***************	**************
1.	IR CALIBRATION	POLYETHYLENE	EACH RUN	5X NORMAL PK. HTS.
2.				
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT 2 NG/KG

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 2 NG/KG TO 100 NG/KG

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

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J. S. EPA CENTRAL REGION 5 LAB                    6 / 30 / 1977
10 5
                  QUALITY ASSURANCE DATA FOR                OIL&GREASE
--------------------------------------------------------------------------------------
METHOD STORET  PARAMETER          SAMPLE   METHOD
NUMBER NUMBER                     TYPE     DESCRIPTION                 *   #   METHOD REFERENCE
--------------------------------------------------------------------------------------
 741   00560   OIL&GREASE         WATER    MODIFIED(25ML SAMPLE VOL )IR  N   Y   REF2-PAGE 232
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       PERFORMANCE AUDIT                 AUDIT FREQUENCY         CONTROL LIMITS
       (FOR TOTAL METHOD)                (% OF ANALYSES)         SEE APP.#1 FOR CALCULATIONS
       ********************              *****************       *************************
       REAGENT BLANK                     5                       2          MG/L
       DUPLICATE ANALYSES                5                       20         RELATIVE PERCENT DIFFERENCE
       SPIKED SAMPLES                                                       % LOSS OR GAIN OF SPIKE
       LAB. CONTROL STANDARD             5                       20         RELATIVE PERCENT ERROR
       REFERENCE STANDARDS                                                  RELATIVE PERCENT ERROR

          PARTIAL METHOD AUDIT       AUDIT TYPE          AUDIT FREQUENCY       CONTROL LIMITS
          ********************       **********          ***************       **************
       1.
       2.
       3.
       4.
       5.

          INSTRUMENT AUDITS          AUDIT TYPE          AUDIT FREQUENCY       CONTROL LIMITS
          *****************          **********          ***************       **************
       1. CALIBRATION                POLYETHYLENE        EACH RUN              5% NORMAL PEAK HTS.
       2.
       3.
       4.
       5.

APPROXIMATE DETECTION LIMIT 2 MG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 2 MG/L TO 100 MG/L

     PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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290<

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U. S. EPA CENTRAL REGION 5 LAB              6 / 30 / 1977
10.5
                    QUALITY ASSURANCE DATA FOR               HEXACHL-BENZENE

METHOD STORET PARAMETER         SAMPLE  METHOD                                      *  #  METHOD REFERENCE
NUMBER NUMBER                   TYPE    DESCRIPTION

 744   39700  HEXACHL-BENZENE   WATER   GAS CHROMATOGRAPHY MASS SPEC.               N  N  NONE

         PERFORMANCE AUDIT                    AUDIT FREQUENCY            CONTROL LIMITS
         (FOR TOTAL METHOD)                   (% OF ANALYSES)            SEE APP. #1 FOR CALCULATIONS
         ********************                 ****************           *************************
         REAGENT BLANK                        5                          10        UG/L
         DUPLICATE ANALYSES                   5                          20        RELATIVE PERCENT DIFFERENCE
         SPIKED SAMPLES                                                            % LOSS OR GAIN OF SPIKE
         LAB. CONTROL STANDARD                5                          20        RELATIVE PERCENT ERROR
         REFERENCE STANDARDS                                                       RELATIVE PERCENT ERROR

            PARTIAL METHOD AUDIT        AUDIT TYPE          AUDIT FREQUENCY      CONTROL LIMITS
            ********************        **********          ***************      **************
         1.
         2.
         3.
         4.
         5.

            INSTRUMENT AUDITS           AUDIT TYPE          AUDIT FREQUENCY      CONTROL LIMITS
            *****************           **********          ***************      **************
         1. RETENTION TIME                                  EACH RUN             5% FROM NORMAL
         2. DETECTOR SENSITIVITY        EACH RUN            10% FROM NORMAL
         3.
         4.
         5.

APPROXIMATE DETECTION LIMIT 10 UG/L

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 10 UG/L TO 500 UG/L

         PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370
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U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
10.5

QUALITY ASSURANCE DATA FOR

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
747							

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS
REAGENT BLANK		
DUPLICATE ANALYSES		RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES		% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD		RELATIVE PERCENT ERROR
REFERENCE STANDARDS		RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
1.				
2.				
3.				
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
1.				
2.				
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM TO

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U. S. EPA CENTRAL REGION 5 LAB 6 / 30 / 1977
10.5

QUALITY ASSURANCE DATA FOR LEAD

METHOD NUMBER	STORET NUMBER	PARAMETER	SAMPLE TYPE	METHOD DESCRIPTION	*	#	METHOD REFERENCE
750		LEAD	GASOLINE	ATOMIC ABSORPTION	Y	Y	22

PERFORMANCE AUDIT (FOR TOTAL METHOD)	AUDIT FREQUENCY (% OF ANALYSES)	CONTROL LIMITS SEE APP. #1 FOR CALCULATIONS	
********************	*****************	**************************	
REAGENT BLANK	EACH RUN	0.001	GRAMS/GAL.
DUPLICATE ANALYSES	ALL VIOLATIONS	0.005 GR. /GAL.	RELATIVE PERCENT DIFFERENCE
SPIKED SAMPLES			% LOSS OR GAIN OF SPIKE
LAB. CONTROL STANDARD	EACH RUN	0.003	RELATIVE PERCENT ERROR
REFERENCE STANDARDS	EACH RUN	0.005 GR. /GAL.	RELATIVE PERCENT ERROR

	PARTIAL METHOD AUDIT	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	********************	**********	***************	**************
1.				
2.				
3.				
4.				
5.				

	INSTRUMENT AUDITS	AUDIT TYPE	AUDIT FREQUENCY	CONTROL LIMITS
	*****************	**********	***************	**************
1.				
2.				
3.				
4.				
5.				

APPROXIMATE DETECTION LIMIT 0.001 GRAMS/GAL.

WORKING CONCENTRATION RANGE WITHOUT SAMPLE DILUTION IS FROM 0.001 GRAMS/GAL. TO 0.1 GRAMS/GAL.

PHONE THE CENTRAL REGIONAL LAB QUALITY ASSURANCE COORDINATOR WITH ANY QUESTIONS AT 312-353-8370

TECHNICAL REPORT DATA
(Please read Instructions on the reverse before completing)

1. REPORT NO.
EPA-905/4-77-004

2.

3. RECIPIENT'S ACCESSION NO.

4. TITLE AND SUBTITLE
Quality Assurance Practices and Procedures

5. REPORT DATE
April, 1977

6. PERFORMING ORGANIZATION CODE

7. AUTHOR(S)
Billy Fairless

8. PERFORMING ORGANIZATION REPORT NO.

9. PERFORMING ORGANIZATION NAME AND ADDRESS
Central Regional Laboratory
1319 West Pershing Road
Chicago, Illinois 60609

10. PROGRAM ELEMENT NO.

11. CONTRACT/GRANT NO.

12. SPONSORING AGENCY NAME AND ADDRESS
Same as above

13. TYPE OF REPORT AND PERIOD COVERED

14. SPONSORING AGENCY CODE
905/00

15. SUPPLEMENTARY NOTES

16. ABSTRACT

The program used by the Central Regional Laboratory (CRL), Region V, EPA to control data quality is described. It includes management responsibilities, analytical methods used, quality assurance audits for each method and control limits for each audit. Reference is made to approximately 200 different analytical procedures used to analyze air, water, sediment and biological samples for over 100 different parameters.

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
quality assurance management detection	quality assurance management parameter audits control limits detection limits analytical methods	13B 13H

18. DISTRIBUTION STATEMENT Release unlimited	19. SECURITY CLASS *(This Report)* Unclassified	21. NO. OF PAGES 297
	20. SECURITY CLASS *(This page)* Unclassified	22. PRICE PC A13 MF A01

EPA Form 2220-1 (9-73)